PRELIMINARY REPORT ON CZECHOSLOVAK EXCAVATIONS IN THE MASTABA OF PTAHSHEPSES AT ABUSIR

UNIVERZITA KARLOVA PRAHA

PRELIMINARY REPORT ON CZECHOSLOVAK EXCAVATIONS IN THE MASTABA OF PTAHSHEPSES AT ABUSIR

CHARLES UNIVERSITY PRAGUE 1976

© UNIVERZITA KARLOVA, PRAHA 1976

TO THE MEMORY OF PROFESSOR ZBYNĚK ŽÁBA, THE DIRECTOR OF CZECHOSLOVAK EGYPTOLOGICAL EXPEDITIONS TO ABUSIR IN 1960, 1961, 1963, 1966, 1968 AND 1970

THE AUTHORS OF THIS PUBLICATION WOULD LIKE TO EXPRESS THEIR THANKS TO THE REPRESENTATIVES OF THE EGYPTIAN ANTIQUITIES ORGANIZATION FOR THEIR INVALUABLE ASSISTANCE IN THE ORGANIZATION OF CZECHOSLOVAK EGYPTOLOGICAL RESEARCH PURSUITS IN THE AREA OF THE MASTABA OF PTAHSHEPSES AT ABUSIR

CONTENTS

Foreword (Z. Uherek) 11
Introduction (M. Verner) 13
1. Report no. 1. The Season of 1960 (Z. Žába) 17
2. Report no. 2. The Season of 1961 (Z. Žába) 19
3. Report no. 3. The Season of 1962 (Z. Žába) 21
4. Report no. 4. The Season of 1966 (Z. Žába) 23
5. Report no. 5. The Season of 1968 (Z. Žába) 25
6. Report no. 6. The Season of 1970 (Z. Žába) 29
7. Report no. 7. The Season of 1974 (M. Verner) 33
8. The Survey of the Xth Expedition of the Czechoslovak Institute of Egyptology, Charles University (V. Martinák) 39
9. The Architecture of the Mastaba of Ptahshepses (V. Fiala) 47
10. Reliefs of the Mastaba of Ptahshepses at Abusir (M. Verner) 61
11. Inscriptions and Marks on Masonry Blocks in the Mastaba of Ptahshepses (M. Verner) 75
12. Secondary Burials in the Area of the Mastaba of Ptahshepses at Abusir (E. Strouhal) 85
13. Coffins of Secondary Burials from the Site of the Mastaba of Ptahshepses (L. Bareš) 91
14. Pottery from the Site of the Mastaba of Ptahshepses (P. Charvát) 95
15. The Pillar System of the Pillar Court of the Mastaba of Ptahshepses at Abusir (M. Korecký) 109
16. The Eight-Stem Columns of the East Portico of the Mastaba of Ptahshepses at Abusir (M. Korecký) . . 117
Notes 125
Plates

FOREWORD

In mid-1974 the Czechoslovak Institute of Egyptology completed its basic research tasks at the site of the Mastaba of Ptahshepses at Abusir.

The research of the mastaba, which began in 1960, enabled the Egyptologists of the Czechoslovak Socialist Republic to enlarge, for the first time in the history of Czechoslovak Egyptology, their theoretical knowledge by empirical archaeological research on the territory of the of Egypt Arab Republic. As a result, Czechoslovak Egyptological studies have entered a new stage of its contemporary development, i.e. a stage giving new dimensions to Czechoslovak traditions in the sphere of Egyptological studies based on both research results of Professor František Lexa and world Egyptology.

The leadership of field research efforts was entrusted to the care of Professor Zbyněk Žába, the talented student of Professors Lexa and Černý. He succeeded in forming a group of young scholars who, under his supervision, set to carry out new research tasks of Czechoslovak Egyptology.

At the very beginning they had to tackle the complicated problems emanating from its participation in the UNESCO project concerning the safeguarding of Nubian monuments threatened with the waters of the Aswan High Dam. The small team of Czechoslovak Egyptologists had to work extremely hard in order to fulfil with honour its vast duties. This is the main reason why the research pursuits at the site of the Mastaba of Ptahshepses went on for the period of fifteen years. In addition, the site of the Mastaba of Ptahshepses, which was chosen as the main research site jointly by Professors Lexa, Černý and Žába, proved to be much more complex and challenging than ever expected. Consequently, its research called for both more time and scholarly endeavour. The final stage of this research work was undoubtedly influenced a great deal by the tragic and sudden passing away of Professor Žába who was the soul and principal figure of Czechoslovak Egyptology in general and its research endeavours in Egypt in particular. His collaborators and students had to complete the tasks alone. Professor Žába's colleague, dr. František Váhala, was charged with completion of the research project. Unfortunately, his recent passing away did not allow him to participate in the preparation of this preliminary report. The Czechoslovak Egyptologists are determined, however, to overcome the problems created by the two fatal blows and complete with honour the remaining tasks, presenting to the world scholarly public such reports on the outcomes of their research in Egypt which would correspond to the traditions of Czechoslovak science in general and Czechoslovak Egyptology in particular.

The research of the Mastaba of Ptahshepses took place within the framework of Czechoslovak Egyptological expeditions to the United Arab Republic in the period 1960—1974. To this research was totally devoted the first expedition in 1960, parts of the second and third expeditions in 1961 and 1963 respectively, the whole of the seventh, eighth, nineth and tenth expeditions in 1966, 1968, 1970 and 1974 respectively. In the course of the expeditions under review the entire site of the Mastaba was cleared including its adjacent areas. There was carried out a thorough archaeological, architectonic, epigraphic and anthrophological research accompanied by geodetic as well as general documentation. Apart from the fundamental research pursuits, preservation actions were carried out wherever needed to prevent devastation of the building. Great care was of course devoted to adequate and safe storage of mobile finds in the storehouse built near the Mastaba.

A number of scholars, specialists, documentary and organization workers took part in the Egyptological expeditions. Apart from Professor Žába it was dr. Eugen Strouhal (archaeological and anthropological research), dr. Miroslav Verner (archaeological and epigraphic research), dr. Vladimír Fiala and Prof. Miroslav Korecký (architectonic research), engineer Vladimír Martinák (geodetic surveys); dr. František Váhala, Milan Zemina, dr. Evžen Hnátek, dr. Zdeněk Uherek, dr. Miroslav Raab (all other tasks of documentary, specialist or technical nature) and several other assistants including students of Egyptology (let us name at least Petr Charvát and Ladislav Bareš who participated in the tenth expedition).

The preliminary report presented on the following pages gives us an opportunity to express our gratitude to the government of the Czechoslovak Socialist Republic, Ministry of Foreign Affairs, and Charles University for their assistance and material support facilitating the realization of our scholarly research. At the same time we would like to thank the government of the Egyptian Arab Republic, the authorities of the Egyptian Antiquities Organization, and all those who helped us carry out our research tasks.

Zdeněk Uherek

INTRODUCTION

The establishment of the Czechoslovak Institute of Egyptology in Cairo enabled Czechoslovak Egyptologists to conduct their field research work on Egyptian territory. The founders of the Czechoslovak Institute of Egyptology at Charles University, Academician František Lexa and Professor Zbyněk Žába, carefully considered the direction which the field research should follow to harmonize with the general conception of activities pursued by the newly founded institute. Having consulted Professor Jaroslav Černý, they decided to focus field research pursuits upon systematic discovery of original and new source materials which could facilitate a clearer and better comprehension of the development of the ancient Egyptian state during the Old Kingdom, especially its social structure, administration etc. Their proposals were approved by representatives of the Egyptian Antiquities Organization and it was stipulated that the starting point of the research programme should be the site of the Mastaba of Ptahshepses at Abusir near Cairo.

The Czechoslovak Egyptological expedition was not first, however, to conduct research in the Mastaba of Ptahshepses. As a matter of fact, the Mastaba was discovered in the summer of 1893 by French archaeologist Jaques de Morgan[1]) on the very spot which the German expedition led by Richard Lepsius indicated at the end of the first half of the nineteenth century as the site of remains of a pyramid (No. XIX according to Lepsius) with an enclosure wall.[2]) J. de Morgan excavated and completely cleared only two rooms which he marked on his plan with letters A and B.[3]) Subsequently, he provided the two rooms with a roof, repaired parts of damaged walls providing the southern entrance to room A with an iron door. Outside the two rooms J. de Morgan carried out only surface surveys and digging which, as a rule, did not go deeper than the preserved tops of pillars or top parts of walls in the area north, south and west of rooms A and B. J. de Morgan thus succeeded in surveying only a small part of the site. Even though he came up with a few pieces of new information he does not seem to have comprehended the complexity of the building and the fortunes of its owner. This

[1]) J. de Morgan, Découverte de Mastaba de Ptah-chepsès dans la nécropole d'Abou-Sir. Revue archéologique, 3e série-t. XXIV (Paris 1894), pp. 18—33.

[2]) R. Lepsius, Denkmäler aus Aegypten und Aethiopien I, Bl. 32.

[3]) J. de Morgan, op. cit. p. 21, fig. 2.

conclusion stands out most clearly in a confrontation of J. de Morgan's field research report with the preliminary report prepared by the Czechoslovak expedition.

The necropolis of Abusir has been examined by very few research teams and only one of them deserves to be mentioned here, namely, the German expedition of "Deutsche Orient-Gesellschaft" led by Ludwig Borchardt. The expedition was not concerned directly with the site of the Mastaba of Ptahshepses but with the large pyramid complexes of the kings of Dyn. V[4]) and with several private tombs in the area. Its excavations include very valuable comparative and complementary material related to the Mastaba of Ptahshepses.

All data concerning the Mastaba of Ptahshepses which had been known before Czechoslovak research of the site can be found in Topographical Bibliography. III. Memphis.[5])

*

The following "Preliminary Report on Czechoslovak Excavations in the Mastaba of Ptahshepses at Abusir" is a team work. The contributions written by the authors should be considered as entirely preliminary information concerning several important and long-term tasks ensuing from the research pursuits. Consequently, the discussions in most contributions are limited to stating several basic facts. It is assumed, of course, that subsequent evaluation of the finds will bring about an elaboration upon a number of contentions and hypotheses outlined in this Report. As far as the collection of articles of this Report is concerned we must admit it does not include a few contributions which we miss in particular, such as an archeological report on excavations in individual sections of the interior as well as the exterior of the Mastaba of Ptahshepses. Originally, such a report had been conceived by Professor Žába who, however, passed away before being able to finish it. This is why the report will be completed and published later on. To fill in at least partially the gap in our reports and to acquaint the interested reader in some detail with the programme and results of each excavation season in the area of the Mastaba of Ptahshepses, we decided to make use of the reports which Professor Žába presented to the authorities of the Egyptian Antiquities Organization following the completion of each season of excavations. The form of Professor Žába's reports was adhered to even

[4]) L. Borchardt, Das Grabdenkmal des Königs S' a3ḥu-re^{c}. I, II. Lepzig 1910–1913.
id. Das Grabdenkmal des Königs Ne-user-re^{c}. Lepzig 1907.
id. Das Grabdenkmal des Königs Nefer-'ir-ke3-re^{c}. Lepzig 1909.
H. Schäfer, Priestergräber und andere Grabfunde vom Ende des alten Reiches bis zur griechischen Zeit vom Totentempel des Ne-user-re. Leipzig 1908.

[5]) Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs, and Paintings. III. Memphis, (Oxford 1974, 2nd ed.), pp. 340–342 and fig. XXXIX.

in the final report on the excavation season of 1974 which was prepared by the author of this Introduction.

In conclusion we would like to express our regret that Professor Žába can no longer take part in the preparation and evaluation of the important finds coming from the excavations in the area of the Mastaba of Ptahshepses. With the exception of the last expedition, Professor Žába lead all other expeditions and supervised all excavation seasons in this Czechoslovak concession at Abusir. He was tireless in organizing the entire research programme, spending long hours on acquiring necessary documentation concerning architecture, archaeological finds, texts, scenes, graffiti, etc. Anybody trying to solve a problem connected with this research will have to rely upon the basic documentation compiled mostly by Professor Žába. Unfortunately, he did not left behind any final manuscript based on that research. As a matter of fact, he intended to start with a systematic analysis and evaluation of the outcomes following the completion of Czechoslovak expeditions to Nubia within the framework of the UNESCO project. The research of the largest non-royal mastaba discovered in Egypt so far will always be connected and associated with his name.

Our last but not the least thanks belong to our Egyptian friends and colleagues who assisted us in excavations. As far as inspectors are concerned, they are as follows: Mr. Munir Basta (1960), Mr. Mohammad Mohsen (1960), Mr. Kamal Fahmi (1961), Mr. Faruq Gomaa (1962), Mr. Mahmud Abd el-Razig (1962), Mr. Mamduh Abd el-Zaher (1966), Mr. Ali el-Kholi (1966), Mr. Ragab Abd el-Haq (1968), Mr. Muhammad el-Saghir (1968), Mr. Girgis Dawud (1970), Mr. Muhammad el-Saghir (1970) and Mr. Lotfi Farid (1974). We are also grateful to the Reis Abdo el-Kereti for his exemplary cooperation as well as to the labourers from Quft and to other labourers from Abusir and Saqqara who participated in our excavations.

Miroslav Verner

THE MASTABA OF PTAHSHEPSES AT ABUSIR

REPORT No. 1

THE SEASON OF 1960

During the work of clearance there were found 707 objects (all of them were registrated): model vessels, pot-sherds, beads, bones of birds, charcoal, pieces of a column (small fragments) and fragments of reliefs. The portico and a greater part of the Court were cleared to the bottom. The most important finds consisted of inscribed blocks of limestone (seven in number), which, as we found out, belonged to the portico. De Morgan does not speak about them although they were discovered in the area which, according to his statement, gave the impression of having been completely cleared by him. One of those blocks was left untouched as it was part of the superstructure which was to be removed only in the second season.

We found no trace of pillars in the portico, spoken about by De Morgan and indicated on his plan as pillars by a dotted line (fig. 1). He refers to columns, small parts of which he states to have discovered there; those found by us may well be parts of the broken column from room no. 3 (fig. 2) (Borchardt found one part of it much further off during his work on both the Abusir pyramids and the complex of mastabas near the pyramid of Nyuserre). As the pavement was removed in ancient times, there is no material evidence of other pillars or columns having stood in the portico.

Besides the seven blocks mentioned above, which were inscribed with texts and scenes in low relief, we found in the Courtyard two huge architraves which had fallen down from the northern range of pillars, and a very damaged block which we think to have been the upper part of a pillar. All the three blocks were inscribed in sunk relief with the titles and name of Ptahshepses. In the western part of the Courtyard we uncovered a drainage system with partly broken conducts. It led from the Courtyard to the Pillar Court. We followed it until it disappeared under the pavement of the until then still uncleared Pillar Court, between the first (NW) and second pillars. In its nothernmost course it was preserved under blocks of the wall which partly divides the Courtyard into two sections thus giving support to the roof of the Courtyard (not existing any longer by now). Only one inner filling part of that wall continues to stand at the western wall of the Portico being formed by large blocks of local "green" limestone; it gives the impression of being part of the western wall

*) Concerning the excavation areas (A–J) see fig. 44.

that had fallen down into the Courtyard. A large lintel was found at the eastern corner of the portico but it does not fit to the door of the portico where there is no lintel preserved.

During the first season we started epigraphical work in rooms nos. 3 and 4 as well as the portico. The results of this study are as follows: The lowest titles of Ptahshepses, e.g. that of a hairdresser, keeper of king's headwear and Director of the Palace, were found in the portico. Especially the nearly invisible upper part of the portico (which we nevertheless have been able to decipher) and a block belonging to the portico and found during that season, are instructive. Higher titles, and especially functions, were found on the base of the granite statue in room no. 3, e.g. that of the Superintendant of all works of the King, but not yet the title of Vizier. This title appears on walls of rooms A and B and in the thickness between them. A more complete range of functions and titles, however, is not given anywhere else than on architraves and other pieces of the Pillar Court. Before our work at Abusir started, only some twelwe titles of Ptahshepses had been known. At the end of our first season we came up with the number of forty titles indicating that Ptahshepses was a much more important person than he had been considered until our discoveries.

During the first season we found some reliefs on the walls of the ghafir's shed built near the NE corner of the superstructure. We dismantled this shed at the end of our first season uncovering not fewer than 710 fragments of reliefs and statues. A further study has shown that they belonged to Borchardt's storehouse, now in ruins; the pieces come from the Mortuary Temple of Sahure.

† ZBYNĚK ŽÁBA

THE MASTABA OF PTAHSHEPSES AT ABUSIR

REPORT No. 2

THE SEASON OF 1961 (AUGUST 26—DECEMBER 18)

The second season of the clearance had to start immediately after the return of our expedition from Nubia at the end of August 1961. The beginning of our work at Abusir was, however, much delayed because of the storehouse which had to be built during our work in Nubia (the storehouse was not completed until the middle of October). Objects were transferred from the Mastaba to the new storehouse on October 20 and 21.

The second season started our work in the northern part of the Mastaba where we cleared the rooms named by De Morgan C, D, E and F nearly to the floor, discovering there large blocks that had fallen down (and which we could not immediately extract). We then continued clearing in the NE corner (which De Morgan had not explored because of a lack of money) finding there room no. 3 rebuilt in later times for habitation purposes and provided with a small staircase and room no. 2 almost completely destroyed by extraction of Tura limestone. It was there that we found the front part of a granite statue of Ptahshepses, unfortunately headless. In room no. 1, facing East and continuing with room B (De Morgan's) we were fortunate enough to find two columns, both broken but otherwise only shightly damaged, even with wooden pegs *in situ* in the middle of each base. Contrary to the two columns of room B, these were not six-but eightstems lotiform columns, monolithic, made of fine white limestone. The new columns bore no trace of colour and their capitals were not elaborated in the same detailed fashion as those of room no. 3. Having found the face of the eastern enclosure wall (and having thus a proof that there was a connection between rooms nos. 3 and 1), we cleared room no. 1 only as far as necessary to protect the two columns until the time we could device a special construction (a roof) at the end of clearance work.

In the Pillar Court, two of the 20 pillars were broken and one, nearly fallen down, was erected anew. Some of them, especially in the eastern range, were much eroded. Only two more pieces of the topmost part of pillars were found, being much decayed, however. From 20 architraves which originally supported the roof of the Pillar Court, only one more was found intact (a corner one), so that their total number found during the two seasons is three. Numerous fragments of broken architraves were found shattered into small pieces. In the middle part of the Pillar Court we discovered a basin standing near the hole in which a great quantity of fragments of a quartzite statue (or statues) of

Ptahshepses were found with a fairly well preserved face, which we were lucky to have found even with its black paint marking the pupils of his eyes, hair, etc. The name of Ptahshepses and his titles were found on other broken pieces of the statue. A little to the South an altar (with *ḥtp* shaped top) was found being unfortunately in a bad condition. A drainage system emptied the basin and continued to the eastern wall of the Pillar Court where it disappeared. At the main entrance, in the southern part of the Pillar Court, a few damaged scenes were found. (The outside part of the damaged entrance was to be cleared together with other outside faces in the next season.) The south-west door preserved the base of reliefs executed in low relief and with remnants of colour. Before this door, a small wall of later times disclosed the base of a statue of sitting Ptahshepses, of which we had found a torso (headless) in the northern part of the tomb.

Out of the large quantity of fragments of reliefs discovered during the season two are of special interest. On one block we found the Egyptian gorge, torus, architrave and top of the same column as in room B, beautifully carved and partly coloured. It represents part of a civil building under the porch of which Ptahshepses was meant to observe a procession of his cattle. Another small piece shows a son of Ptahshepses in the lap of his father (thus pushing this kind of familiar scene from the El-Amarna Period back to Dyn. V.). Also valuable are blocks completing rooms nos. 4 and 3. Rooms no. 5 through no. 9 were found without decoration; room no. 9 was destroyed; in room no. 1 (i.e. that with new columns) there were found blocks and inscriptions with the name and titles of Ptahshepses, but the whole of the upper part was destroyed so that no continuous inscribed wall was standing there.

† ZBYNĚK ŽÁBA

THE MASTABA OF PTAHSHEPSES AT ABUSIR

REPORT No. 3

THE SEASON OF 1962 (JUNE 6—JULY 3, AUGUST 29—SEPTEMBER 8)

We reviewed the imperfectly preserved inscriptions and scenes of inner rooms nos. 4 and 3 of the Mastaba in the light of a previous comparative study based on the copies and photographs taken during the two preceding seasons. This time we verified the readings, cleaned the stone of intrusive specs of dirt and particles of limestone which was left there from the time when the fallen roof of the upper blocks crashed against the preserved remains of walls; we cleaned them of intrusive specs of mortar from the time of De Morgan's building the modern superstructure. We then proceeded to photograph the scenes. The inner architecture of the two rooms mentioned above was measured from the point of its dependency on the ornamentation and *vice versa*.

We used the opportunity of having with us two experts in geodesy who worked in our expedition in Nubia, doing preliminary geodetical measurements and investigations in the cleaned part of the Mastaba of Ptahshepses.

A small number of fragments of reliefs found in the neighbourhood of our storehouse, where they were exposed to wind-storms, were collected and deposited in our store-room to be studied at the end of our clearing the Mastaba; they belong either to the Mortuary Temple of Sahure or to the Mastaba of Ptahshepses.

† ZBYNĚK ŽÁBA

THE MASTABA OF PTAHSHEPSES AT ABUSIR

REPORT No. 4

THE SEASON OF 1966 (JULY 17—NOVEMBER 30)

During this season we finished in the Mastaba of Ptahshepses the epigraphic and photographic documentation on the walls *in situ*. We also verified all inscriptions and reliefs as well as their reading after having studied them in Prague.

In the second stage of our research work at Abusir we continued the excavation started in 1960 and 1961. This season's excavation confirmed the importance of the Mastaba of Ptahshepses by our discovering six new chambers in the SE area, i.e. the place considered by De Morgan to lie outside the limits of the Mastaba, behind its southern gate. It was proved that in reality the southern gate leading into the Pillar Court did not connect the court with the outside area but, on the contrary, connected the Pillar Court with other chambers. The chambers are very likely to have served as store-rooms, which we tentatively marked with nos. 15—20. The white limestone casing was only partially preserved. Stone blocks imprints on the floors enabled us, however, to ascertain the original constitution of the ground plan of the chambers, this being so even at the places where there was no wall casing any longer. The southern walls of chambers R and M were formed by the principal southern wall of the Mastaba so that we reached by this excavation the limits of the Mastaba in the south. The mighty outer walls of the Mastaba were built of huge blocks of light green limestone, being now preserved as high as about 3.8 metres. As most of the walls lacked casing of white Tura limestone we succeeded in comprehending better the construction technique of the Ancient Egyptians by discovering graffiti written in red and black colours on inner wall blocks. They were of three kinds: 1) inscriptions written on blocks in the quarries; 2) inscriptions written on blocks after they were assembled in a construction; and, finally, 3) drawings from the same time.

During the excavations in the SE part of the Mastaba we found 335 items. They were mostly new fragments of reliefs, some of which supplemented our finds from the preceding seasons. Quite outstanding among them is the scene of a draught-board game and parts of the scenes depicting large boats. All those reliefs belong to the most perfect reliefs from the Old Kingdom. A smaller number of finds belonged to fragments of alabaster statuettes. Chamber no. 17 was later used for burial purposes. We found there two skeletons and parts of a third one which was subsequently dismantled by thieves and parts of it thrown also into chamber no. 18. When clearing the outer section of the main (enclo-

sure) wall of the Mastaba we discovered two more skeletons. Offering gifts had been stolen so that we found only a few faience beads, shells and amulets from necklaces. At the outside SE corner of the Mastaba we found other burials leaving them for the time being uncovered *in situ* because the clearing of the outer area of the Mastaba is planned for the following seasons.

The excavation pursuits of this expedition thus uncovered the entire inner eastern section of the Mastaba. We uncovered the outer part of the SE corner, finding other graffiti. This means that the western half of the Mastaba as well as the outer sections of the Mastaba continue to remain uncovered.

† ZBYNĚK ŽÁBA

THE MASTABA OF PTAHSHEPSES AT ABUSIR

REPORT No. 5

THE SEASON OF 1968 (MARCH 1—DECEMBER 12)

In this season we started to excavate the area west of rooms A, D and F and of the Pillar Court. De Morgan found there, behind door P_1 of his plan, a room (which he termed "a street") and three chambers (α, β, γ). According to him, they were found without any reliefs but the door to chamber β contained the name of Ptahshepses. Curiously enough, De Morgan suggested that this building could belong to a son bearing the same name as the owner of the Mastaba. This is, of course, impossible since the whole eastern part was added to the western building, which must therefore be older. For this reason alone (not speaking of some other considerations) we were sure that the building to the west must be the original Mastaba of Ptahshepses to which there was later added the monumental eastern enlargment. This was well proved by the work of the season under review.

The entrance to the original Mastaba of Ptahshepses was the door (P_1 of De Morgan's plan) leading to a SN corridor. At the southern end of the corridor there was another door (not known to De Morgan; it was partly apparent at the end of our season of 1961) to a chamber (our no. 23) with door in the west, opening to a staircase leading to the roof. In contradiction to the monumental eastern addition with its columns supporting the ceiling of incredible height of 6,11 metres, the ceiling of the Initial Mastaba (partly preserved in room no. 23) was only 2,14 metres above the floor level. The next chamber ("rue", "cul-de-sac" of De Morgan's plan) formed a recess with an offering table before a false-door, now destroyed. This chamber was given no. 22. Another door, barring the corridor, leads to chamber no. 26 (De Morgan's α), parallel with the preceding one, which must have contained another offering table and another false-door; the western wall is almost completely destroyed. Still more to the north there is a small room no. 25. De Morgan could not have cleared it completely; at the spot he marked door "π_3" on his plan we found a solid wall with remains of a finely painted false-door. The opposite (i. e. eastern) wall still preserves one small relief *in situ*, and a few loose blocks with reliefs of men bringing offerings; fine reliefs of gazelles were also found there. The inscription with the name and titles of Ptahshepses (mentioned by De Morgan) was not found by us *in situ* on door "π_2" of De Morgan, but on two loose blocks (our Nos. E 1836 and E 1868). The titles are those of Ptahshepses the father, not of the son of the same name. The next chamber to the west (our no. 27, De Morgan's "γ") was found stacked with fragments of reliefs bearing different numbers prefixed with letter T. They seem

to be fragments of reliefs removed by De Morgan from rooms A and B and of his surface finds from Abusir (although some German newspapers and tins with German Inscriptions found in the upper level suggest the possibility that Borchardt might have used this room as a store-house, too). Having discovered so many fragments of reliefs we were sure that our store-house would not be sufficient and we therefore asked the Egyptian Antiquities Organization for permission to add another room to the building we erected in 1961 at the place of Borchardt's ruined store-house. To the north of rooms nos. 15, 27 (De Morgan's "β" and "γ"), where De Morgan did not excavate at all, we found a northenmost chamber with a staircase leading to a limestone offering table and a granite false-door, shattered to pieces. Our work there was slow because of three large ceiling blocks which had to be removed before we could clear the floor. This room is no. 28.

Behind the west walls of rooms nos. 22—28, there was originally solid masonry in the shape of a core mastaba, which was to protect the graves. This had been torn down in ancient times since a resulting excavation was filled with later burials. They were again plundered in post-Roman times. In the great hole and in rooms nos. 22, 23, 25, 26 there were buried about 150 individuals.

The construction of the burial chamber is very unusual for a mastaba. It was built of large blocks of white Tura limestone being covered by twelve blocks of white limestone of which each two leaned one against the other, thus forming the same kind of sarcophagus chamber ceilings as found in pyramids of Dyn. V. From those huge blocks only the westernmost parts of two of them were found. The others were shattered into pieces. In the main sarcophagus chamber we found the lower part of a perfectly shaped granite sarcophagus, 294.5 cm long, 149.5 cm wide, and 110.2 cm high. Inside it there was a perfectly fitting limestone casing only 7.3 cm thin, partly shattered. The cover, 54.8 cm thick, had one of the narow parts broken by wedges.

South of the main sarcophagus chamber there is a side chamber 2.12 cm long and 1.48 cm. wide. Through the broken door a smaller granite sarcophagus was pushed inside. The chamber could not be originally intended for this sarcophagus since the chamber is shorter than the sarcophagus which is the same as that of the larger one. The cover was shattered to pieces. Both sarcophagi were found filled with nothing else but sand and rubbish. Below the large sarcophagus (and in the cracks of the floor) we found small copper vessels and remains of a foil of gold. The sarcophagus chamber was accessible via a small descending corridor from the east. It was still blocked since the thieves had not used it. From the main sarcophagus chamber there led way to the north. This was still blocked by fallen masonry but preparations were made to clear it. We expect that in the NW corner there will be another sarcophagus belonging to the northernmost false-door and offering table.

Because all the cult rooms of the Initial Mastaba are now stripped of their casing, and the sarcophagi being uninscribed, it is impossible to assign a name to them. The fragments of inscriptions found in the rooms in question, as well as some other indications, make us believe, however, that the burial chamber was prepared for Ptahshepses, his wife, and one of his sons who had died sooner.

In order to know the exact extent of the Initial mastaba in the west (even before clearing the outside walls of the whole mastaba), we cleared the NW corner of the building. The lower layers of it are well preserved allowing us to ascertain that the Initial mastaba was 19.5 metres wide.

Area "G" (which leads directly against the southernmost wall of the Initial Mastaba being accessible by a door from the Pillar Court)was found to have originally contained six long, narrow rooms accessible from a long EW corridor. A shorter corridor, going in the SN direction, linked area "G" with area "H" accessible by another door. The six chambers were apparently store-rooms. The ground-plan is indicated by nothing else but remains of the inside walls and impressions of their blocks in the partly preserved floor. No traces of decoration belonging to this area were found there.

The next area, "H", is by one third longer than area "G" since it extends not only to the south of area "G" but to the east as well. Area "H" was unfortunately stripped of the floor and of all remains of the casing of the walls so that its ground-plan is difficult to reconstruct. The most curious feature of this area is the curved north wall built of well-fitting core blocks (the casing of Tura limestone is missing). The purpose of this curvature is not apparent but its shape seems to indicate that this part of the area contained originally a large boat. The ceiling (marked by two red lines on the core of the west wall) was relatively low, about 215 cm above the ground. An ascending line painted in red colour on the eastern part of the southern wall and indicating a staircase suggests that this part of the mastaba had another floor. In this connection it is to be remembered that the two preserved columns in the main entrance to the monumental addition of the Mastaba were about 6 meters high. Area "H" was almost entirely filled with débris, only a small amount of finds; it was later re-used. A later brick wall, completely closing the north-west part of the area, was built on the débris.

From August 22 we continued excavation in area "E" trying to find another burial chamber belonging to the false-door of the northernmost cult room no. 28. The excavation in the mass of masonry west of cult rooms nos. 22—26 showed that the burial chamber belonging to them had no underground connection with the false-door of room no. 28 where there probably was a separate burial chamber. An original entrance to the main burial chamber was found below the pavement of room no. 25, below the right side of a painted limestone falsedoor forming the east wall of room no. 27 and the west wall of room no. 25. The sloping corridor was found still filled with original filling blocks. Room no. 27 was cleared of numbered and unnumbered pieces (mostly fragments of reliefs, but also those of statues, pieces of wooden model figures, and of pottery) which had been put there by a previous excavator. (A piece of an envelope proved it was Borchardt. German newspapers found near the fragments come from 1903 and 1904.)

During the month of September we removed the last blocks from the shaft leading to the burial chamber. During the month of October we cleared a short tunelling of thieves (just to the left of the entrance of the shaft) and another one in room no. 22; we also found a few objects including copper tools. In the area behind the third northernmost offering table, where we tried to reach a second

burial chamber, we encountered huge filling blocks still situated high above the chamber. During these two months we continued to document the objects found this season (5,739 objects altogether, including 2,091 stored by Borchardt in room no. 28.

Our excavation has clearly shown that the north-western mastaba was undoubtedly the Initial Mastaba of Ptahshepses and not of his son of the same name, as De Morgan believed. A study of the titles found in the different parts of the Mastaba makes it clear that the old and self-contained Mastaba had been built for Ptahshepses and two members of his family before he became vizier and got the title of *ḥ3ty-ᶜ*. His highest title at that time was that of *śmr-wᶜty*. The titles used in the rooms of the first enlargement of the Mastaba show that it was started when Ptahshepses was promised (but still not given) the rank of *ḥ3ty-ᶜ* and the office of Vizier. The original Mastaba of about 60 by 38 cubits was thus enlarged by about 42 cubits in the east (i. e. by 21.77 metres) and by exactly the same lenght in the south. One portico, three offering rooms, a serdab, a storeroom, and one staircase leading up and contained in the Initial Mastaba (besides the burial chamber) were enlarged in final additions by two monumental porticos adorned with lotus columns, another serdab, other store-rooms, two staircases, a monumental Pillar Court with twenty pillars, and a large area in the SW part of the mastaba which contained an unknown number of rooms; at least one of them is most likely to have either simulated or really contained a barque of large dimensions. A court and another (third) new portico connected the new offering room with the Pillar Court and the Initial Mastaba.

The final version of the Mastaba of Ptahshepses is thus likely to have become the largest non-royal mastaba of the complex type with many rooms coming from the Old Kingdom.

† ZBYNĚK ŽÁBA

THE MASTABA OF PTAHSHEPSES AT ABUSIR
REPORT No. 6
THE SEASON OF 1970 (DECEMBER 12—JUNE 18)

This season's most important task was to uncover the outer walls; therefore, it was tackled immediately after our working ground was made accessible. First of all, it was necessary to remove from close vicinity of the walls all the blocks dug out previously from inside the Mastaba and to tear down a small shelter for the guard it was built at the north-eastern corner at the order of the Antiquities Organization in 1961 to replace a little house which we took apart at the request of the director of the Antiquities Organization and found in it 710 reliefs of Borchardt's excavations at Abusir. It was also necessary to prepare a miniature rail track in suitable places. All this consumed a lot of time because many blocks lying outside the walls were of considerable size and it was necessary to push them away labouriously or, in the case of shapeless core blocks, to break them into pieces and carry behind the fence of our working ground. In this way a wall was erected with its western part being even higher than the fence itself. Simultaneously with this kind of work (which did not require our supervision), drawing and photographic documentation was being prepared and the overcrowded store-house was being re-arranged and made ready to receive new finds.

As early as the beginning of March we started lowering the layers of sand on two sides of the Mastaba in the places in which they reached over the masonry having been brought by the wind into the uncovered interior of the Mastaba, i.e. on the western and eastern sides.

Since the lowest drifts of sand ran along the whole of the northern side and then on the eastern one where at least part of the sand had been removed in front of the main entrance and at the south-eastern corner (1961 and 1966), we started main operations there. The western side came as third because sand had been removed at the north-western corner and there were no finds there (mostly nothing but pure drifted sand), so that there was no need for a third worker to supervise and his place could be taken up by the one supervising the excavation north of the northern wall. Soon it was found out that on all the three sides of the Mastaba there was preserved the mudbrick enclosure wall, in the north at the average distance of four metres, in the west of almost five metres and in the east of over three metres. In the west and north it was two metres wide (at the base), while in the east there was only a 33 cm wide and low wall, with the exception of the place right in front of the main entrance (perhaps it was so because about four metres farther there was a mighty wall confining

another row of mastabas). The height of the mudbrick enclosure wall is only a few decimetres in the north, while in the east it is 165 cm. high and in the south-west even 330 cm high.

Similar walls seem to have been perhaps around every mastaba at Giza, Abusir and Saqqara. Unfortunately, they are not known so well either because they are not so well preserved as in our case or because they are still covered by sand like those around the best-known mastabas at Saqqara, or because archaeologists did not pay enough attention to them and destroyed them during excavations. The more imperative it is, therefore, to uncover the wall around the Mastaba of Ptahshepses. During this year's excavations, when we were supposed to uncover at least the outer walls, it was not possible to reach this goal because of the above mentioned distance from the Mastaba itself, with the exception of the space in the east where the whole closest wall in the north-east and the space reaching as far as the second mudbrick wall were uncovered. Despite all our efforts only the outer walls of the Mastaba in the west, north and east were uncovered this year. The whole southern wall remained under sand and with it supposedly also a few dozen of precious graffiti that occur on almost all exposed core blocks, provided they are not covered by slabs of casing of white limestone. In the north-east where one part of this dune was removed this year to find the south-eastern corner of the mudbrick enclosure wall we found three blocks with two opposite narrowing polished surfaces and an indent for attaching the bottom part. This is undoubtedly a base for the end of the sill wall of the roof. It is similar to the narrowing walls of pyramid temples at Abusir and a recently discovered wall around the Pyramid of Chephren at Giza. The end itself, most probably rounded, was not found this year. This find shows that evidently we shall not find at the top of the walls of the Mastaba of Ptahshepses an ending of the type of "Egyptian cavetto."

Outside the wall of the Mastaba, mostly in the very masonry of the mudbrick enclosure wall in places where it had been lowered down to the height of a few tens of decimetres and then in the sand between the stone and brick walls we found 37 burials coming perhaps from the Graeco-Roman Period, most of them in wooden coffins. There were also several child burials placed only on boards and one child burial in a big vessel of red burnt clay. All of them were poor burials without mummification and with little funerary equipment, mostly just beads and amulets. The find of a clay statuette of a woman musician was the only exception: it was decorated in white, black and red colours, but was not found *in situ*.

The age of the mudbrick wall into whose remnants the funerals had been placed was not possible to determine precisely. The size of the bricks and the way of construction suggest that it was built in the Old Kingdom, most probably right after the Mastaba had been finished. The stone wall closing the main entrance is slightly older, as well as the brick obstruction of the main entrance found right in the portico. Those additions come from the times when the burial ground had ceased to be guarded by a higher number of people and it was necessary to make the job of guarding easier. According to a preliminary assessment they could be dated to the end of the Old Kingdom.

During this season's excavations there were found 2,294 objects, mainly fragments of the second portico, pot-sherds, ostraca and the above-mentioned 37 late burials with funerary equipment. Among the fragments of the reliefs there are some important inscriptions and a few well-preserved and perfectly executed scenes from the life of ancient Egyptians. The total of the individual find numbers, including this year's finds, rose to 12,234.

On the newly exposed walls of the Mastaba there were found 184 more graffiti during this year's excavations. We can expect that some of the unsolved problems will be clarified on the basis of the graffiti that will surely be found in the later phase of excavating pavement and under-pavement blocks in front of the walls of the Mastaba and after the remaining section of the southern outer wall of the Mastaba has been exposed.

One of the most difficult tasks of this expedition was to complete the picture documentation from the previous expeditions, especially the last one during which we found in the area of the Mastaba (in room no. 27) a cache with 2,091 objects that had been hidden there by the German archaeologist Borchardt during his excavations of pyramids at Abusir. Our own finds that year were the most numerous out of all our expeditions (3,754 field numbers) so that we were able to document in drawing only 215 objects from this unexpected discovery. We did not have either financial means (to prolong our stay and document the rest) or photographic material (which was not, incidentally, available in Egypt). Following an agreement with the Egyptian Antiquities Organization the documentation was therefore settled to be shifted to this year's expedition, together with that of some other finds from our expeditions which were not possible to document completely for similar reasons or which had to be documented again or in greater detail from different aspects. This year, 5,147 objects were documented in drawing, i.e. all the remaining finds of Borchardt (1,876 pieces), all pieces found this year (2.260 field numbers), and a selection of objects discovered by previous expeditions (new or more precise documentation of 1,011 pieces).

During excavations outside the eastern wall of the Mastaba of Ptahshepses we discovered another mudbrick wall right behind the little mudbrick enclosure wall. As the eastern little wall was rather narrow and low in comparison with the mudbrick wall in the west and north, the more eastern wall seemed to have formed the eastern enclosure wall of the Mastaba, while the little wall seemed to have been but intermediary one to strengthen the security of the main entrance. Further excavations showed, however, that the second wall belonged to the next mastaba, which we had presumed to be there. Our presumption was based on the find of a limestone block in the probe excavated in 1961 to hold a winch, by means of which a big ceiling block was removed that year from the place where there had been pillars of the main portico; my conclusion is also supported by this year's find of fragments of reliefs with titles that evidently did not belong to vizier Ptahshepses. The narrow space stretching from this wall to the end of the plateau indicates a relatively small mastaba. It would undoubtedly be suitable for us to take its exploration as our own goal. However, the Egyptian Anti-

quities Organization decided to start excavating this mastaba this very year during our season. The job was given to our inspector from the Egyptian Antiquities Organization, Mr. Muhammad es-Saghir. During the last days of our stay in Egypt they managed to expose an inscription including also the name of the owner of this new mastaba — Ptahshepses. It seems that he was one of the two sons of the vizier who used their father's name.

† ZBYNĚK ŽÁBA

THE MASTABA OF PTAHSHEPSES AT ABUSIR

REPORT No. 7

THE SEASON OF 1974 (JANUARY 16—JUNE 13)

The Czechoslovak expedition that was in charge of this year's excavation season on the Czechoslovak concession at Abusir was headed by dr. F. Váhala. Other members were: dr. V. Fiala (architect), dr. Z. Uherek (secretary and documentarist), dr. E. Strouhal (anthropologist), V. Martinák (surveyor), M. Zemina (photographer), P. Charvát (archaeologist), L. Bareš (Egyptologist) and dr. M. Verner (Egyptologist).

The expedition was supposed to finish excavations in the area of the Mastaba of Ptahshepses. This scientific goal was to be tackled in three phases. The first task included finishing the excavations and the systematic exploration of the space delimited by the southern wall of the Mastaba of Ptahshepses and the northern walls of two other buildings situated more to the south, namely, the Mastaba of Tepemankh and that of the Princesses. There is a difference in height of about 5 metres between these two buildings. The lowest level reached (that of the pavement along the southern wall of the Mastaba of Ptahshepses) was from 4 to 5 metres under the present level of the terrain. The specific character of the desert terrain—loose sand drifts and in some places also extensive destructions of some secondary brick buildings—complicated our following the layers and profiles. In the "alley" between the Mastaba of Ptahshepses and those of Tepemankh and the Princesses there was exposed a mudbrick wall (see fig. 3) surrounding the Mastaba of Ptahshepses and discovered also during the excavations in other places around this Mastaba. This wall is about 1 metre thick; its distance from the southern wall of the Mastaba varies from 6 to 8 metres. The wall was built at the same time as the Mastaba and it probably ran around the plot of Ptahshepses' tomb and evidently served also to protect it from sand dunes (incidentally, the Mastaba was built on a slope!). Above this wall there was discovered a layer about 50 cm wide that was mixed with a great deal of soil and contained numerous fragments of pottery; the preliminary dating places it to Dyn. V or VI (beer-jugs, forms for baking bread, stands, bowls with recurved rims, and others; for further reference see P. Charvát, Pottery from the Area of the Mastaba of Ptahshepses).

In the space between the south-western corner of the above-mentioned mudbrick enclosure wall and the Mastaba of Tepemankh there was discovered a mudbrick twin-mastaba (see fig. no. 3). Both burial chambers are accessible from the north by separate vertical shafts, at the bottoms of

which there are rather small rectangular openings into the chambers. Each consists of one room about 1 metre wide, over 2 metres long and about 1.3 metre high. Both are oriented towards north-south. In the western chamber there was discovered a primitive sarcophagus put together from slabs of limestone; it contained skeleton remains from a robbed burial. In the sand dune of the eastern chamber (the sand got there through a hole in the vaulting) there were discovered remains of a wooden coffin, a polychrome limestone statuette of a standing man in a short apron holding a dagger (the tomb owner?) and some other small objects. Both the chambers were robbed as early as the antiquity. Their preliminary dating places them to the period of the Old Kingdom. There may have been buried priests practicing the mortuary cult of kings buried in the pyramids of Abusir.

The space between the Mastabas of Ptahshepses, Tepemankh and the Princesses was paved by flatly laid bricks probably shortly after the mudbrick twin-mastaba had been finished. Subsequently, not only the twin-mastaba but also the above mentioned layer from Dyn. V—VI got under the pavement. Its four-metre wide part running along the southern wall of the Mastaba of Ptahshepses was damaged later, probably at the time when the outer casing of the Mastaba was destroyed (during the New Kingdom?).

In the Late and Graeco-Roman Period, poor burials started to be deposited into the brick pavement and very often right into the mudbrick enclosure wall around the Mastaba of Ptahshepses and into the layer above the pavement. The cemetery from the above-mentioned periods was discovered also in the other sections of the pyramid field of Abusir during German expeditions at the beginning of this century. During the season of 1974 the Czechoslovak expedition found in the explored space 74 burials, most of which were in wooden anthropomorphic coffins. Some coffins were decorated by paintings on stucco basis and some still bear primitively executed texts common on coffins of this kind (for further reference, see L. Bareš, Coffins of Secondary Burials Found During Czechoslovak Excavations in the Mastaba of Ptahshepses at Abusir). Unfortunately, the coffins fell apart within a few minutes after being uncovered. (They disintegrated in spite of our using special conservation materials developed by the Institute of Chemistry at Pardubice, Czechoslovakia.) In some cases, however, the burials had not been put into anthropomorphic coffins but had been simply placed on boards, in one case it had been placed on poles and in another, a child burial had been deposited into a big clay vessel. In a few cases there was discovered the cloth into which bodies of the deceased had been wrapped. The funerary equipment of those burials is also very poor, including only small clay vessels, bronze rings, ear-rings and bracelets, decorations made of shells and in exceptional cases also silver jewels. The skeleton material was carefully conserved and analyzed from the anthropological point of view.

Above the layer from the Late and Graeco-Roman Periods there was discovered another one with a few so-called destruction plateaus of stamped sand and limestone chips. In the space above the south-western corner of the mudbrick enclosure wall there was uncovered the rim of another big

destruction plateau that runs farther to the west and on which there were broken limestone blocks from the surrounding buildings, mainly from the pyramid complex of Nyuserre.

The biggest and most precious find of this year's season at Abusir is undoubtedly a fragment of a pyramidion of a huge obelisk of red granite which was found about 3 metres southward of the south-western corner of the Mastaba of Ptahshepses. The material, the size and manner of execution (the point of the pyramidion was covered by copper plates attached in three-centimetre deep holes on all four sides; in one of these holes there were found remains of green copper patina) suggest that this can only be an element of royal architecture. Theoretically, there are two possible interpretations of this find. According to the first one the obelisk may come from one of the big royal complexes, most likely that of Nyuserre, as the place of find suggests (some other big pieces of red granite found during excavations might have been part of the obelisk shaft). Explorations of tens of pyramid complexes on the territory of Egypt seem to exclude this alternative because they do not offer any analogy (the only exception being that of two small obelisks in front of the entrances to the pyramids of Iput and Neit, queens of Dyn. VI and wives of Pepi II). Such a huge obelisk as that found by the Czechoslovak expedition must have had a massive base and that has not yet been found at Abusir, unless it had the form of the mysterious square building that Borchardt marked on his plan at the north-eastern corner of the enclosure wall of the pyramid of Nyuserre and whose existence he did not explain. If it should be so, we should have a unique piece of evidence of a specific modification of the standardized plan of the royal pyramid complex. It would have been built in this way because of the configuration of the terrain and the cult of the Sun which was at its peak at that time and the obelisk was its most expressive and important symbol. Then there is the second possible interpretation of the find of the obelisk. We learn from texts that in the history of Egypt there wery built six of the so-called Sun Temples. Two of them have already been discovered at Abusir, and the central position in them was taken by a huge obelisk. Therefore, it is possible that the find of the fragment of the obelisk by the Mastaba of Ptahshepses directs us to one of the four missing temples, whose ruins it will be necessary to look for in those places of the cemetery of Abusir that have not been explored so far.

On the core of the wall of the Mastaba of Ptahshepses there were discovered 24 new graffiti written mostly in red colour and exceptionally drawn lightly in charcoal. The form and contents of those grafitti do not differ from others discovered during previous explorations in the area of the Mastaba of Ptahshepse (for further reference see M. Verner, Inscriptions and Marks on Masonry Blocks of the Mastaba of Ptahshepses). After detailed exploration of the masonry of the Mastaba of Ptahshepses there were discovered a few tens of other graffiti written in red, black and yellow colours, thus increasing their number in the complex that had been recorded by Professor Žába in the two preceding sea-seasons. Of great value are also fifty fragments of reliefs discovered during excavations outside the southern wall of the Mastaba of Ptahshepses and concentrated mostly in its eastern section. On the fragments there are frequently depicted ships. According to the preliminary assessment all those frag-

ments come from the Mastaba of Ptahshepses, probably from the rooms in the south-eastern section (for further reference on relief decorations of this section of the Mastaba see M. Verner, A Preliminary Report on the Reliefs of the Mastaba of Ptahshepses). In the space under investigation there were also discovered other fragments from the end of the Old Kingdom: an uninscribed limestone falsedoor, a limestone fragment of a scene of the funerary banquet in sunk relief, a limestone fragment of an offering list in sunk relief, fragments of two green glazed faience ushebtis from the New Kingdom, a fragment of limestone statuette of a sitting ape from the New Kingdom, pottery, fragments of architectural elements from the surrounding buildings — mainly those from the Mortuary Temple of Nyuserre — and others. All the finds were drawn and photographed and objects selected by the inspector of the Egyptian Antiquities Organization were recorded (including photographs) into the Register Book of the Organization. During the excavations in the space between the southern wall of the Mastaba of Ptahshepses and the northern ones of the Mastaba of Tepemankh and the Princesses situational plans documenting the phases of the excavations were drawn, circumstances under which the finds had been discovered were recorded and immobile objects were documented in the photogrammetric manner. All finds discovered in 1974 were put into the store-house built by the Czechoslovak expeditions a few metres north of the Mastaba of Ptahshepses.

During the second stage of the activites of the Czechoslovak expedition, which followed the termination of the excavations, documentation was being completed. In the sphere of architecture a plan of the present state of the Mastaba was drawn in the scale 1 : 25. A project of preliminary protection of masonry against further destruction was also worked out and handed over to the Egyptian Antiquities Organization. A great deal of work was done in the spheres of geodesy and photogrammetry. There was finished basic surveying and measuring, including the astronomical one, necessary for mapping the whole complex. Measuring of angles and height of floor in the individual parts of the building was also done. Complete photogrammetric documentation was the greatest accomplishment, however. It was done by a special electronic double movie camera (which was probably used in archaeological explorations in Egypt for the first time). On the basis of this documentation it will be possible to do further architectonic and epigraphic research under laboratory conditions in Czechoslovakia with the same precision as on the spot. The epigraphic documentation carried out during the seasons of 1974 consisted mainly of taking facsimiles of most of the discovered graffiti (all from the season of 1974 and most from the preceding ones), making location plans of those graffiti, drawing complicated or damaged details of relief decorations that are needed for further reconstruction and publication, and the like. Anthropological work of the season of 1974 concerned mainly preliminary studies of the skeleton material from the excavations south of the Mastaba of Ptahshepses, documentation and conservation.

During the last stage of the season of 1974, finds were parted between the Czechoslovakia and Egypt. According to the principles set by the Egyptian Antiquities Organization and under the

inspector's supervision there were selected some kinds of mobile objects not connected with the architecture of the Mastaba of Ptahshepses, like pottery, small decorations, fragments of statuettes, instruments, etc. Those objects were placed into boxes and transported to the Egyptian Museum in Cairo to be inspected by the Commission of the Egyptian Museum. Because of lack of time there was done only a preliminary partition to be finished in the future. The part of the Czechoslovak share transported to Czechoslovakia will be included into the collection of Náprstek Nuseum, a section of the National Museum in Prague. Egyptian authorities magnanimously decided to lend osteological and anthropological material to Czechoslovak scientific institutions and at present dr. Strouhal from Náprstek Museum and dr. Beneš from the National Museum are analyzing it.

The excavation season at Abusir ended. However, there is still a number of tasks to be finished on the Czechoslovak concession in the area of the Mastaba of Ptahshepses. The most important one concerns its reconstruction in cooperation with the Egyptian Antiquities Organization and making the whole complex open to public. Apart from these activities in the field the main goal of the Czechoslovak Institute of Egyptology is to analyze, assess and publish the results of the research in the area of the Mastaba of Ptahshepses at Abusir.

MIROSLAV VERNER

THE SURVEY OF THE Xth EXPEDITION OF THE CZECHOSLOVAK INSTITUTE OF EGYPTOLOGY CHARLES UNIVERSITY

VLADIMÍR MARTINÁK

1. INTRODUCTION

One of the tasks of the Czechoslovak Egyptological expedition to Abusir in 1974 was the completion of the geodetic documentation survey. The former survey at Abusir concentrated on the location of the properly marked framework of geodetic points which contained 13 geodetic points in the area of the Mastaba and its nearest surroundings. The framework was located in 1962 as the local framework of geodetic points. The details of the framework are presented in the "technical report" of 1962, provided by J. Tlustý and O. Vosika (the archives of the Czechoslovak Institute of Egyptology). Some data of the survey are published[7]).

For orientation of the framework towards the cardinal points the astronomical azimuth of one side in the length of about 100 m was taken by the method of polar coordinates. The mean error of the azimuth was $\pm 25^{cc}$. The mean error in the position of the geodetic points was ± 5 mm.

In the course of the following years most of the geodetic points of the framework were destroyed owing to the unexpected extension of the excavations, and the framework has not been used since. In 1974 four geodetic points of the framework were found. They were marked by iron bars set in concrete.

In the period preceding 1970 under the supervision of Professor Z. Žába, the preliminary site plan of the Mastaba had been located. The measurements had been taken by relatively simple means: tachymetrically by means of a level, a target rod and a survey tape. A layout at a scale of 1 : 250 was compiled (Z. Žába, J. Chochola, 1970, the archives of the Czechoslovak Institute of Egyptology). Moreover, with the use of the measurements, especially those of the reconstructed distances, approximate working site plans of the Mastaba at a scale of 1 : 100 were drawn for the documentation of the archeological findings.

[7]) J. Tlustý, O. Vosika, Geodetický a kartografický obzor č. 2 a 3, Praha 1964.

The survey of 1974 was planned to finish the geodetic documentation. Its main tasks were:

1. The photogrammetric documentation of the Mastaba (about 80 % of the area of the structure).
2. The working out of the general orientation plan of the Mastaba and its nearest surroudings.
3. The precision of the existing site plan at a scale of 1 : 100 by the precise location of some details or by making use of appropriate ground control points for rectification whose coordinates were located for the purpose of the photogrammetric documentation.

2. THE EQUIPMENT

The survey equipment was chosen according to the above mentioned tasks. Also a certain weight limit had to be respected. At the same time it was necessary to duplicate some of the instruments so that at least the main work should be done in case of instrument failure. The geodetic instruments were in the main products of the Zeiss Co. (Jena, GDR) and their characteristics allowed them to work even in the higher temperature of the spring time at Abusir (30—40 °C).

The overall weight of the apparatus and the material with wrapping for the transport was 150 kg. The apparatus was rectified and verified before the departure for Abusir. For completeness we present the following list of apparatus used in the survey:

1. Precision theodolite Theo 010 (Zeiss, Jena).
2. BRT 006 tachymeter (Zeiss, Jena) (fig. 4).
3. Horizontal parallactic stadia rod Bala, 2 m high (Zeiss, Jena).
4. Double photogrammetric stereocamera SMK 5,5 (0808 — 120 cm, Zeiss, Jena) with a 12 V battery, and other usual aids (fig. 5).

3. THE EXECUTION OF THE GEODETIC MEASUREMENTS

In the area of the Mastaba a new framework of geodetic points was founded. The location of the geodetic points of the framework resulted from the preliminary 1 : 100 site plans. On the plans the "horizontal" and "vertical" axes were laid out marking the connecting lines of the faces of certain pillars in the pillar court (fig. 6). We located the horizontal axis of the object and took the bearings of geodetic points C and E (fig. 7). Approximately in the direction of the horizontal axis we located the distant geodetic point A. The mutual position and the distances between the geodetic points were located by the theodolite Theo 010 in 2 sets and the distances in four sets with the aid of the Bala parallactic rod. The mean error in the position of the geodetic points is ± 5 mm.

The basis for locating the heights was the ground level at the point of intersection of the horizontal and vertical axes. The relative height of 0.00 m was established.

By direct measuring we verified the perpendicularity of the connecting lines of the pillars which were used for the location of both the axes. We measured the angles α and β in the triangle (fig. 6) and the supposed right angle R we calculated as the complement of 180°. By the calculation we found out that the connecting lines of the pillars intersect at an angle 37 seconds of arc greater than the right angle R. This deviation can be considered within the limits of the technical precision of the location of the axes owing to the state of the pillars and their relatively short distance. For the purpose of the compilation of the site plan it is possible to identify the vertical and horizontal axes with the set of pillars. It is still within the limits of graphic precision.

In the local framework of geodetic points the azimuth was taken of the basic side of $\overline{A\ C}$ which enables us to orientate the whole framework towards the four cardinal points. The azimuth was taken by the astronomical method of solar coordinates. The precision of the method in the given conditions is less than that of the polar coordinates method; yet the latter could not have been used because in the period soon after the war taking the measurements at night would have presented a lot of obstacles. Measurement by the method of solar coordinates was carried out in two survey sets in the course of one day. The resulting azimuth of the side was compared with the original orientation of the framework of geodetic points carried out in 1962. As the results did not differ by more than 30 sec of arc, the original orientation of 1962 was adopted. It had been taken by the astronomic method of polar coordinates with a relatively high precision $\pm 2.5^{cc}$. The technical report by J. Tlustý and O. Vosika of the measurement of the astronomical azimuth of the framework of geodetic points in 1962 is filed in the archives of the Czechoslovak Institute of Egyptology.

The origin of the local set of coordinates (fig. 7) was located at a fictive point so that the measured points should be found in the first quadrant. The intersection of the horizontal and vertical axes has the coordinates $x = 30{,}000$ m and $y = 40{,}000$ m. They are identical with those of the former site plans.

As starting points for the measurement of the auxiliary points and the ground control points for rectification, geodetic points C and E were used. They were located in the higher positions: point C on the concrete roof of the chapel and point E on the crest of the wide wall on the southern edge of the pillar court. The points were stabilized with the aid of a cross hewn in the concrete floor or the stone. Both the geodetic points commanded the surroudings and the sight lines taken from them embraced the whole measured space. As the geodetic point A was more distant, it was used for the location of the initial direction.

The main purpose of the survey was to take bearings of the ground control points for the purpose of photogrammetric documentation and to provide some points for making the site plan more precise. The ground control points on the outer walls of the Mastaba and inside the room with a convex wall were located with the theodolite by the method of forward intersection from two stations. The angles were measured in one survey set. For this purpose, at first the stations of the theodolite were located

as the auxiliary points. The coordinates of the auxiliary points were taken by the method of polar coordinates from the geodetic points or with the aid of a short polygonal traverse. The angles were taken with the theodolite in one set, the polar distance with the aid of the parallactic rod in two sets. All the auxiliary points were located simultaneously in the part adjoining one outer wall of the Mastaba. The closed traverse of the perimeter was not located. The reason for this was the imperfect mark of the auxiliary points which was only temporary. The mark was provided with the aid of a cross hewn on a flat boulder engulfed in sand up to the upper plane. The bearing of the auxiliary points and the ground control points was taken simultaneously and in the least time possible always in one outer wall of the Mastaba.

In this manner gradually the bearings of the ground control points on all the outer walls were taken. To avoid gross error in the bearing of the auxiliary points their position and height was checked on the joints of the polygonal traverses or by locating the check line between two auxiliary points. The deviation in the coordinates did not exceed the value of ± 1 cm. To check, some more auxiliary points were located from three stations. Using these measurements the precision of the located points was stated: the position mean error and the mean error in the height of the auxiliary points as ± 1 cm, the position mean error of the ground control points taken by the method of forward intersection as ± 1.5 cm (the mean error of the height ± 1 cm).

The ground control points in the respective chambers and spaces inside the Mastaba were located tachymetrically with the aid of the BRT 006 tachymeter. All the stations of the tachymeter were first located as the auxiliary points by the method of polar coordinates from the geodetic point C, (or E) with a precision similar to that of the location of the stations of the theodolite on the outer perimeter of the Mastaba (the angular measurement day a new measurement was taken). A lot of superfluous measurements in the terrain were taken; thus it was possible to correct the errors found only after arrival back in Czechoslovakia when calculating the coordinates.

The calculation of the coordinates of the located points was carried out in the ČSSR by Minsk 22 computer. The field recordbooks had to be transformed into a form required for the computer. The result is a list of the coordinates of the stations, the ground control points and the site points, and the site plan of these points at a scale of 1 : 100 plotted on the automatic coordinatograph DIGIGRAF (coordinates x, y).

4. TAKING PHOTOGRAPHS FOR THE PHOTOGRAMMETRIC PURPOSES

Eighty per cent of all the walls and spaces of the Mastaba were photographed by the double photogrammetric stereocamera SMK. Most of the pictures were taken from a distance of 5—10 m, approximately 25 % of them with the aid of the supplementary lenses from a distance of 2—4 m. For each stereoscopic pair of pictures (fig. 8) four ground control points were located although only 2—3 ground

control points are necessary for the photogrammetric plotting. Four ground control points were chosen so that the ground photographs should also be use for the single-shot photogrammetry, where four ground control points are necessary for plotting in the required plane and scale. The walls of the Mastaba are about 4 m high so that in most cases only one picture was necessary to cover the whole height of the wall.

The ground control points were marked on the walls with the aid of 5 cm-sided paper squares. The squares were divided by two diagonals into four triangles of which two opposite ones were black and the remaining two white. The squares were glued on the walls by a synthetic adhesive. They were situated approximately in the corners of the overlap of each stereoscopic pair of the photographs. The position of the ground control points was located in the terrain with the aid of the optical sighting device which belongs to the kit of the SMK apparatus. As we did not know how long the squares would hold on to the wall, the glueing, the location and the photographing were done in the shortest time possible. During the survey it turned out that most of the glued-on marks remained intact for the whole two months.

The exposure of the photographs was determined by the exposure-meter and in fact only two variants alternated. As the work was extensive and it was possible to stay at the place of work from 7 a. m. to 2 p. m., two kinds of light were used: the whole wall was either in shadow or it was lit from the front.

The photographs were taken on the ORWO WP. 1 Rot Rapid plates. Their conductance was evaluated by $G = 0.9$, the visual acutance 65 lines/mm and the spectral response 500—670 nm. The plates were not especially chosen for taking photographs at Abusir but they were at our disposal with the SMK camera. The plates were put in the plate holders in the dark room the day before the photographing took place. As the apparatus has only 24 plate holders, 12 pairs of the pictures could be exposed every day. Once every two or three days the exposed plates were developed, fixed and dried in the dark room. We used a universal developer which our photographer had for other purposes. He had to carry out all the work in the dark room mostly at night which meant a considerable effort. The conditions for processing the photographs were relatively unfavourable: the equipment of the laboratory was not sufficient for processing a higher number of plates, and maintaining the temperature of the solutions was difficult. About 5% of the plates were destroyed during the processing.

The negatives were checked immediately after their photographic processing. This meant evaluating the photographic quality, checking the number and location of the ground control points in the picture and the correct numbering of the pictures. Each pair of the pictures was marked by a number composed of that of the upper left and lower right ground control points.

In total, 120 stereoscopic pairs of the pictures were taken (the spoiled 5% of pictures is not included).

5. THE DOCUMENTATION OF THE SURVEY AND ITS FURTHER USE

After arrival back in Czechoslovakia the work connected with the evaluation of the geodetic measurements was, or is still being finished. The documentation comprises these data:

1. The list of the coordinates (x, y, z) of the geodetic points in the area of the Mastaba, of the ground control points and the site points. The coordinates are listed in the local system of coordinates. Apart from the elementary list of the coordinates it also contains data of the field record books and the calculations of all the points calculated by the Minsk 22 computer.
2. The site plan of the ground control points and other control points at a scale of 1 : 100 plotted on the automatic coordinatograph;
3. The set of 9 cm by 13 cm negatives taken by the double photogrammetric stereocamera SMK. On the basis of these negatives and the coordinates of the respective ground control points a stereoscopic model of the photographed space can be worked out by the plotting apparatus.
4. The set of positives enlarged approximately 2 ×. In every picture the respective ground control point for rectification and its number is marked by a circle. The system of numbering of the ground control points for rectification and that of the pictures is explained in the legend of the set of positives. The set of positives serves for identification of the photographed area and for orientation when working with the photogrammetric pictures. An instance of a picture is demonstrated in fig. 9.

The said data are used for these purposes:

a) The compiling of the overall orientation plan of the Mastaba and of the structures in the nearest surroundings. The plan was compiled at a scale of 1 : 500.

b) The precision of the existing 1 : 100 site plan. For architectonic studies some of the ground control points for rectification were used which enable the site plan to be made precise, especially in the environment closest to these points.

c) For documentation of the chosen walls of the Mastaba it is possible to compile a photogrammetric plan of the pictures. For this purpose it is necessary to rectify the pictures in rectifiers into one comparison plane and at the fixed scale. The rectification is done with the aid of four ground control points for rectification and the photogrammetric plan is compiled from the rectified pictures (fig. 10). In the photogrammetric plan it is possible to take measurements of the distances between the respective points in the picture and also to do angle measurements. The precision of the photogrammetric plan is influenced by that of the ground control points for rectification and especially by the shifts of the photographic image of the points situated above or below the comparison plane. If the radial shift of the picture by the influence of the relief exceeds the limit it is necessary to compile an orthophotogrammetric plan in which the respective pictures are rectified by a differential method. The orthophotogrammetric plan comprises an orthogonal projection of the object into the comparison plane and it is possible to measure in it distances and angles in the plane. Its

compilation is, of course, considerably more expensive than that of the simple photogrammetric plan.

The pictures were rectified by E-4 rectifier (Wild, Switzerland), for the differential rectification TOPOCART B with ORTHOPHOTO (Zeiss, Jena) could be used.

d) The complete photogrammetric documentation is provided by the stereoscopic model compiled on the basis of the stereoscopic pair of the pictures and the ground control points for rectification. The model enables us to state the space coordinates of any single point visible in the photograph with the precision approximate to that of the ground control points for rectification. In the near future then we intend to make vertical cuts of some of the walls of the Mastaba and to take the detailed bearings of some parts for the purpose of architectonic studies. At our disposal we have a processing apparatus TECHNOCART (Zeiss, Jena) or TOPOCART B (Zeiss, Jena).

THE ARCHITECTURE OF THE MASTABA OF PTAHSHEPSES

VLADIMÍR FIALA

De Morgan's excavations, the results of which were published[8]) at the end of the 19th century, included about one third of the Mastaba. The pillar court, for example, was uncovered only down to the upper horizon of the pillars. De Morgan was lucky in that he came across the best preserved part of the whole, a chapel decorated with reliefs, the adjoining column hall on the east side, and also not quite so well preserved small chambers attached to the chapel in the north. The French Egyptologist also excavated the west passage leading from the pillar court into other spaces which he considered part of another Mastaba and the south passage which he thought connected the pillar court with the road going through the necropolis. Because in both the directions he came to a stop at destroyed walls, and because of the lack of time, he did not continue in the excavations.

De Morgan did not, of course, fail to notice the quality of the reliefs and the high level of the six-stems lotiform columns. His excavations enriched the important samples of the art of Dyn. V in the Abusir Necropolis, the entire picture of which was further clarified by the expeditions of Borchardt that were soon to follow.

When after a half-century gap the research was resumed the completion of the Czechoslovak excavations in the Mastaba of Ptahshepses brought interesting results. The architectural view of the research seems to be especially interesting because the Mastaba of Ptahshepses is the most extensive and as to its ground plan also the most complicated structure of its type hitherto known from the times of the Old Kingdom.

The general plan of the Mastaba on a 1 : 25 scale was worked out by the author of this part of preliminary report when the excavations were finished in May 1974. The reduced ground plan at a scale of 1 : 200 published here (see fig. 2) was completed on the basis of the partial measurements of the preceding expeditions, during which the spaces formerly excavated by De Morgan were measured precisely, as was the portico with the pair of columns[9]). The greater part of the ground plan remained to be measured and it was especially necessary to define precisely the correlation of the respective parts, which would not have been possible without geodetic measurements of which the author could partly make use. The method of these measurements will be dealt with in another part of this publi-

[8]) J. de MORGAN, op. cit.

cation. The more traditional measurement could have been a better clue when working on the ground plan than the photogrammetric method which follows the spatial relations and volumens not easily transferred to the planimetric form of the vertical projection or of the ground plan. The schematic plan of the whole Mastaba which already anticipates the reconstructional point of view, has been published recently[10]) as a guide to the summary of the reliefs and the paintings. Our further explanaitons will therefore be based on the ground plan (fig. 2) rendering the state of the structure in the moment of completion of the archaeological research in the spring season 1974. From the architectural point of view, it is, in our opinion, sufficiently illustrative to serve our needs of a preliminary report.

The supposed outer dimensions of the Mastaba are in the north-south direction 56.24 m in length and 42.24 m in width.

The outer walls of the Mastaba are extant almost uniformly up to the height of about 3.50—4 m. Only the north-east corner had been damaged but it still permits a reliable estimate of the original ground plan. The outer casing of the Mastaba is missing almost entirely, yet single fragments were partly preserved on all the four sides. This fact, together with the outlines of the original pavement along the foot of the cased walls, enable us to form a picture of the original dimensions of the outer part of the whole structure. Of the outer walls of the Mastaba as well as of the whole Mastaba, there remained mostly just the core built of the local limestone of inferior quality.

The Characteristics of the Respective Parts. The entrance to the Mastaba was traditionally situated in the east. The position was considerably off-centre, close to the north-east corner. It forms a deep niche (see room no. 1.), in which there is a pair of eight-stems lotiform columns situated symmetrically to both the axes. It could be enticing to call the entrance a portico, yet the location of the columns in the inner space — the columns are not a part of the facade — requires the entrance to be classified as an open column hall. This applies only to the original state of the entrance part, for it is today closed from the east by a wall with a central narrow entrance. As this wall was built by a different technique and of much smaller blocks of stone, and especially as its whole width stands proud from the original facade, it can be considered a later annex.

The connection of space no. 1 with room no. 3 was bricked up by De Morgan. He probably did not expect this as the thickness of the wall here was about three metres; so he naturally took it for a limiting outer wall. The peculiarity of room no. 3 is the location of the columns off the longitudinal axis and close to the west wall. This is a consequence of a complementary building, which from the once shallow open hall formed an almost square room. We could also suppose that room no. 3 used to be a column hall with two pairs of columns symmetrically divided. But there are no signs in the pavement

[9]) As for the previous measurements in the Mastaba of Ptahshepses, see above p. 39.

[10]) Top. Bibl. III, p. 340, plan p. 343.

of the bases of the other pair of columns. The space of the corners without columns was from the beginning probably reserved for larger sculptures. This can be documented by De Morgan's finding of the lower part of a standing sculpture.

As we still follow, for better clarity, the numbering of the rooms by professor Žába, we cannot avoid space no. 2. Nothing suggests its use as a chamber as there is no communication that would break the compact walls. The rough structure of the walls made of huge blocks rathers suggests that we can take this for a free space limited from three sides by the cores of the outer walls and most probably filled with rubble. The state of the corner prevents us from suggesting that there might have been a room on the level of the ground floor connected by stairs with the spaces lying westwards.

The most beautiful and the best preserved part of the complex is, without any doubt, room no. 4, the cult chapel, extended in the west in three niches, with a platform in the foreground with three tiny staircases. The three niches were originally closed by small double wing doors, of which we only have extant the lower pin pits. There are no more interesting things from the architectural point of view, except the fact that the cult chapel has doors in each wall and therefore must have been the most frequented junction of the whole layout, for only through this was it possible to enter the many other rooms of the Mastaba.

On the north side there is a door bricked-up by De Morgan which led to the five rooms now provisionally called "northern store rooms", nos. 5—9. They are relatively very well preserved, their casing reaches at places almost the original height, the door between no. 8 and no. 9 is still covered with a block in which we can also find the upper pin pit of the door. The long room no. 9 is more or less a corridor. We can find a massive fallen stone ceiling block there. None of the rooms has the same dimensions or even the same proportions as any other. This variety in layout suggests that we cannot talk about the originally intended store rooms. These are characterized by an identical layout of the rooms, as we can for example see in the Mortuary Temples of the nearby pyramids of the rulers of Dyn. V.

Yet we still have some starting points to define the possible function of some of the rooms. First of all it is the number of the doors which is relatively small. Apart from the entrance door to the chapel it was possible to close only the smallest space no. 8, which is closest to the altar part of the chapel and to the west offering rooms, though these are separated by a massive wall. The tiny and isolated space of the area of hardly three square metres seems to have been used as a guarding place for some objects of higher value. Similarly, room no. 9 situated at the opposite, east end of this unit, is isolated and was even separated from the others by two doors which followed in the same wall (fig. 11). It is the only room of the Mastaba, apart from the burial chamber proper, which was so thoroughly protected. Inside room no. 9 five stairs had been cut in the block, ending on the landing. It is evident that they turned at a right angle and led higher in the eastern direction, for this can be proved by the partly extant supporting wall of the flight of stairs. There may have been a storey analogous to that

of the Mortuary Temple of Sahure[11]). In both cases the rooms thus conceived adjoin the cult chapel on the north side and are secured from outside by an extraordinarily massive wall. That is why it is probable that both the rooms were used as safes for the cult implements, and that the upper floor of space no. 9 extended over no. 2. This lay-out variant cannot be proved now and we shall come back to it in a different context.

The spaces marked 10 and 11 merge. The reason for this numbering was a supposition that the wide nich interrupted by the southern entrance to the cult chapel had in fact been a portico divided by a pair of pillars. In De Morgan's plan the outlines of the pillars in question were marked by a dot- and dash-line. He had expected to find the pillars during the excavations of the Mastaba. But the suggestion was only a vague one. In the course of our excavations nothing was found that would confirm the existence of the pillars; there is only a thick layer of sand on the spot. The supposition of the existence of two pillars cannot be totally rejected, though, as we shall attempt to explain in the section dealing with the history of the structure. Moreover, the partly extant reliefs on the walls of the niche prove that space no. 10 had most probably been roofed which would not have been possible without appropriate supports. The questions concerning space no. 10—11 are not clear either. By the western wall remains of the core of a wall 1.15 m high were found, which reach as far as the level of the southern door to the chapel. Even more substantial are the similar remains of a wall on the opposite eastern side the height of which is the same. The existence of this wall in the original structure is not doubted. Some rougher stones had been left at the spot where it joins the outer walls of the Mastaba. The dressed surface in the corner marks room no. 12 and ascertains its dimensions. The group no. 10—12 was presumably the result of the change of the constructional plan, brought about by the long-termed construction of the Mastaba as a whole.

The pillar court no. 13 had not been preserved in good shape. There are only sporadic remains of the original pavement, otherwise even its subsurface had been broken up. As the significance of the pillar court is dealt with in another section of this book, we shall limit our explanations to the facts concerning the constructional technology. In the east and in the south its sides had been formed by walls of regular larger blocks perfectly laid in horizontal layers as well as in the vertical joints. The limestone blocks of good quality had been dressed evenly in all the joints, only the face had remained rough, so at first sight it recalls a rustication (fig. 12). The wall should have been hewn and smoothed like the northern wall (fig. 13) of space no. 12. The differences in the constructional processes should not surprise us very much because we come across similar differences in other places of the Mastaba.

The technological aspect of the stonecutter's work had not yet been settled at that time. Even other

[11]) L. Borchardt, S'a3ḥureᶜ I, pp. 22—24.

examples from the Old Kingdom show instances of the faces of the walls being dressed only after the wall had been erected[12]).

From the pillar court through the southern passage we enter rooms nos. 15—20, which again form a compact whole in the south-east part of the Mastaba. In the passage there is nowadays a step 0.60 m high. The door above it has not been proved even though it probably existed. All the spaces had thus been elevated in relation to the ground-level of the pavement of the pillar court. The whole had been divided in two parts by a wall which is extant only in the fillings of the casing made of badly laid random rubble. The first part had formed one room whose dimensions we can judge from the traces of the casing in the pavement and red lines drawn on the core-blocks of the walls, up to which the casing had been supported to reach. The thick pavement preserved at places inspired a suggestion of the possible existence of the burial chamber there. The test pits showed only the lower layers of sand and the still deeper ones of the gravel sand. The room proceeds to the narrow passage which formed an entrance to the four small adjoining rooms. The state of the walls in most parts preserved with the casing, and high from 0.20 m up to 2.05 m — allowed a reliable estimation of the ground plan. Each of the spaces differs slightly in the dimensions which is the result probably of inaccurate work rather than intention. All of them were entered by doors, of which one had been on the left and three on the right. Their setting in the wall is not in the same line. No traces of the steps have been found here. The rooms were probably used as stores of offerings.

Rooms nos. 33—39 are similar to these as to the purpose. They are entered from the south-west corner of the pillar court, through passage no. 32, which connects with space numbered no. 40. Whereas the passage can be reconstructed exactly, the rest are only fragments of the constructional elements. Supposing the whole was divided into identical rooms, it is possible to estimate roughly the number of store rooms which were entered from a further passage no. 33 leading from east to west. Several remnants of the casing, its traces on the pavement, the remainder of the pin pits and the scratches left by the turned doors in the pavement including the graffiti on the core-blocks of the walls, allow us to determine the character of the rooms. These altogether form a large area and reveal frequent use indicating the intesity of the cult.

In the passage (no. 32) to the south there was once a door in the lining of which there are pits intended for holding a double bar. The door had led to the largest space of the whole Mastaba (22.93 m by 10.95 m). The peculiarity of the space is its northern wall. It is convex and in the appex of the arch of the near part of the elipse the depth of the convex is 1.32 m (fig. 14). The reason for such a ground plan can be explained in one way only: the space imitated the shape of a boat or in reality contained one. The fact is surprising but as Ptahshepses had been the King's son-in-law he could have had the

[12]) G. A. Reisner, A History of the Giza Necropolis. I (Oxford—London 1942), p. 201, pl. 47d (Mast. 6 4240).

prerogative of some of the features of the royal cult. Anyway, we know another example of a pair of boats in a private Old Kingdom tomb in the Mastaba of Kagemni from the times of Teti's reign.

Some questions still remain open in our case. The space is sufficiently wide to hold two boats. It seems, however, that the boat-shaped room was never finished. No remnants of the pavement nor the cross walls have been found which would more precisely delimit the space for the pair of boats. The few remnants of the irregular brick wall, now lost, are dated much later. There is no evidence of the existence of the casing. It can be argued that the north and east walls which are built of regular and carefully set blocks in precise joints, should have been hewn smooth and then remain without any casing. Yet the huge and rough blocks of inferior limestone on the other two sides require necessarily some casing. The whole space should certainly have been covered with ceiling blocks which would be a sort of support so that the expansion should not much exceed about five ancient Egyptian cubits i.e. 2.60 m. Such distance could have been ceiled without a special construction. It is not probable, however, that the largest of the inner supports or walls would have vanished completely, as everywhere else the ground plan has been sufficiently preserved. By the north wall the masonry was uncovered down to the ground blocks, test sounds were made at places, but nothing confirmed the idea of the Mastaba having been completed in these parts. Furthermore, the non-existence of the ceiling has been proved by a number of the artisan's workshops. We have not met with such features to this extent in other spaces of the Mastaba.

The communication continues through the entrance out of the north-western corner of the pillar court into an enclosed area which can be called the "Initial Mastaba". Its outline and structure are clearly visible and these conspicuously differ from the whole. The dimensions, the layout and the function of the respective types of rooms belong to the type of Mastaba of the period up to the end of Dyn. IV. The bulky core walls are mostly filled with rubble and refuse. The construction is similar to that of the Mastabas in the close neighbourhood, namely the Mastaba of Userkafankh and that of Tepemankh, and also the Mastaba of Princesses in which there was to be buried also the wife of Ptahshepses. None of these Mastabas, though smaller, has only one burial chamber as does the one we are speaking about. Does this mean that Ptahshepses was to be buried in a singular isolation, similar to that of a ruler, and that the daughter of the King was finally buried in his tomb as it agreed better with her social position?

In the "Initial Mastaba" we first enter the offering-room with the remnants of a stone altar (no. 22) and then proceed to a similar room no. 26. Only then do we find ourselves in a passage-like room, with the remnants of the wall-casing. Its western wall contains the remains of a false door decorated with geometric and plant motifs (fig. 15). In the false door there was originally a narrow slit overlooking the Serdab. The floor of the Serdab is 1.27 m above the level of the other chambers. The Serdab is built of roughly dressed limestone blocks of really bad quality. The blocks are fragile and contain reddish veins and layers. Also the pavement is laid almost recklessly. The level of the Serdab was

raised because of a descending shaft leading under it into the burial chamber. The shaft starts under the false door. Behind the room with the shaft there is another chapel (no. 28), with a relatively well preserved altar and the stairs.

The burial chamber (no. 30) is interesting as to the dimensions and the high constructional level. It is situated 3.91 m below the level of the pillar court, so that there is rather a long passage leading to it. The slight double bending and the narrowed profile allowed the passage to be blocked by stones which were only taken out during the excavations. The chamber itself, however, had been plundered from above, i.e. in the most complicated manner (fig. 16).

The area of the burial chamber is 19 square metres and the maximum width 4.51 m. Such a width could not have been covered simply by a ceiling block and particularly if it had to bear a layer of rubble. Similar situation in other Mastabas, for example in Giza, were solved by the supporting central pillar. In our case the problem was solved by a pointed roof, similar to those in the pyramids of Abusir. The height of the chamber can be estimated at 3.30 m. None of the roof blocks had been preserved and we can only judge from the fragments of two pieces, out of the original four pairs, whose remnants set in the outer walls and the inner casing of the chamber were found in situ (fig. 17). Their size was about two fifths of the dimensions of the similar blocks in the burial chamber of the Pyramid of Nyuserre. In the Mastaba of Ptahshepses this type of roof was used for the central part of the burial chamber, whereas the remaining parts of the substructure were covered by four ceiling slabs of considerable dimensions (length about 3.50 m, width 0.78 m and height 1.90 m). One of the ceiling slabs is still preserved. The roof was made of good quality white limestone. To the south of the burial chamber there is a recess intended for the canopic jars (no. 31). Its floor is by 0.31 m higher than that of a burial chamber. The ceiling is flat, the casing preserved. When it was uncovered, there was the smaller of the two granite sarcophagi which was then moved into the central part of the burial chamber. The sarcophagi had been plundered in the past and were found empty. Their inner casing is made of thin limestone slabs. The north — south axis of the chamber goes through the multiple filling of the Mastaba. Even though only one false door was found, the existence of others could not have been denied in the places where the inner casing, especially that of the western walls was not preserved, and where the masonry had been damaged considerably. During the excavations, therefore, test pits were made to the south and to the north of the chamber, as far as the intact terrain. No other shaft was found, let alone a burial chamber, in spite of the large dimensions of the Mastaba.

In the southern part of the Initial Mastaba there is situated the last room no. 23. It had been closed by a door like all the preceding spaces of this part of the Mastaba. The wide lining of all the doors almost reminds us of small passages with considerably lowered ceilings. The uncovered corewall shows a conspicuous change in the building material. The massive masonry made of quarry stone alternates approximately in the middle of the wall with hewn blocks set in regular horizontal layers. (fig. 18). At the west end of the room with the door whose traces are still to be seen in the pavement,

the space lowered again. This is evidenced by a corner remnant of a thin ceiling slab which obviously carried the relieving lintel structure. In this place the stairway starts (fig. 19). Its light slope, indicated by a building line on the core of the side wall, the large distance between the steps, which are preserved only in traces indicate a staircase platform which was favoured by the ancient Egyptians. The stairs were hewn out of monolithic blocks.The original shape of the landing remains a problem to some extent; according to the indications this is an instance of an inclined plane, with the slope bending at 90° so that the last step of the platform had not been regular. In this direction the staircase probably continued up to the roof. This is suggested by the ascending layers of the megalithic structure of the core, and especially by the step hewn in the block with the intention of a better stabilization of this raised staircase. It cannot be proved that the staircase curved at an angle of 180°. The description of the Mastaba of Ptahshepses must be concluded by a question: where did the said staircase lead? The present horizon of the top of the walls and height of the filling form a rectangular room in the south-west corner limited by rough walls, and divided by a low wall. Today's depth of both the parts has been measured by test pits during the excavations. It would be attractive to imagine there the remnants of a room on the first floor level, but we must realize that we are in fact in the midst of the filling and much lower than the structure originally reached. We can see the regularity of the foundations of the would-be walls, but they are too thin, badly made from the technological point of view, and it is not possible to imagine them being almost two metres higher still. The explanation of the room is still problematical.

The Materials and the Structure of the Mastaba. Regarding the fact that the Mastaba is not well preserved, yet all its walls stand uncovered, it is possible to form an illustrative picture of the technological aspect of its construction. It had all been founded on sands, on the stone blocks which are laid under the walls and extend beyond the core. The constructors could thus build the footwall plates of the pavement and the casing of the walls on them. The structure of the walls is not homogenous: it represents almost all the variations known from the Old Kingdom. They can be classified in the following manner:

a) Double megalithic walls with inner filling, two-sided casing behind which there is filling.
b) Megalithic walls with two-sided casing with filling.
c) Double walls with filling; the one type of wall made of rough, undressed blocks, the other of blocks dressed on the contact surface. Two-sided casing with filling.
d) The wall whose constructional component is the casing with wide filling in between.
e) The wall made of blocks dressed on both sides, there is no filling between them.
f) The wall made of blocks dressed on both face sides.
g) At many places the walls are made of small rubble stones the purpose and the date of which is still unknown.

Also the structure of the casing is found in many varieties:

a) The casing made of huge white limestone blocks of the dimensions reaching 2.50 m by 1.20 m and a depth of 0.80—0.85 m. This is the type of the outer casing of the outer walls of the Mastaba, of the last constructional stage.
b) The casing of 0.35—0.45 m breadth, the filling behind it is attached to the core of the dressed blocks. Most of the interiors of the chambers were overlaid thus.
c) The casing of 0.60 m breadth appears especially on the north perimeter of the Mastaba and belongs to the last but one constructional stage.
d) The casing the breadth of which extends in accordance with the height, from 0.20 m to 0.60 m, and adheres to a carefully graded, and considerably sloping core.
e) The casing of 0.20 m breadth.

All the casing was made of Tura limestone. The cores of the walls were built of the local quarry stone. There must have been several, most probably three, quarries as the stone differs in quality and colouring. The better quality was used to construct the walls of the dressed blocks, as well as the pavement. The employement of the materials probably corresponded to the variety of the relief decorations.

At many places we come across the low stone blocks with regular pairs of oval apertures with a diameter of 17—23 cm and a central distance of about 35—40 cm. They were mostly used in the pavement (fig. 20), only rarely for the casing of the walls. In some cases the stones with the holes were found built in the masonry. Regarding the fact that most of the apertures are still filled with a circular or even square filling, the holes cannot be considered an intended part of the structure. The most probable explanation is the hypothesis of their being refuse or redundant material first mean for the construction of the architraves or the roof parts. The respective stone constructional elements in them were connected by pins for which the circular holes were meant. The existence of such pins can be proved in the Mortuary Temple of Sahure[13]). It is improbable that the filled apertures were smoothed flaws in the stone or that they were to help during the transportation of the constructional material.

One of the interesting details of the Mastaba of Ptahshepses is a number of traces left by doors. The doors, obviously made of wood, are not extant. Yet there are in places very distinct traces of the wearing-down of the pavement the cause of which was the frequent use of the doors. The doors can be classified into several types even though not much different. The double wing doors are only in front of the niches of the cult chapel and in the corridor between the spaces III and IV. The inner diameter of the other ones varied between 0.6 m and slightly more than 1 m. In most cases only parts of the pin pits were preserved, sometimes with a turntable, or a turntable by itself. The latter was made of black granite and the top of the pin, about 10 cm in length, turned on it. As soon as it had worn out, the door began to grind the pavement. It is surprising that they were never mended. We have the evidence of the existence of 16 single wing doors which comprise about half of all the ones

[13]) L. Borchardt, op. cit. p. 45; I. E. S. Edwards, The Pyramids of Egypt (London 1961), p. 187.

presumed to have existed in the Mastaba. Of these 8 were left-sided, 3 right-sided, the rest unidentifiable. The difference was, however, also in the manner of the locking in position. Five of them have a pin pit in such a shape that after opening the door sank into a sort of channel and it could not have been shut without being first lifted. The exception was the door of space no. 4 where the treasury is presumed to have been situated. There similar kind of safeguard was used when closing the door. This fact could confirm our hypothesis of the purpose of the place.

The pin pit then consisted of the granite turntable and the limestone pit in the shape of a quarter of an elliptical cone. Round the upper perimeter there was a slat about 5 cm wide. It will be a matter for further investigation to find out whether, and if so, in what manner, the complicated shape of the pit helped the manipulation of the door.

To complete the image of the technological aspect of the structure it is possible to add that at many places scratches drawn crosswards on the walls have been found along which the upper line of the blocks was laid. It is then possible to suppose that the skill of the workers was low and they had to be directed in setting every block. This is also supported by a lot of drawn constructional marks which are dealt with in another part of this publication. The scratches appear only in the walls built of dressed material. The interesting fact is that the unevenness of the surface was eliminated by a thin layer of mortar of high quality.

During the investigations into the structure we have come across three kinds of mortar. The fact itself first seemed to be a clue for clarifying many details of the constructional process. But the reality shows that frequently we find all the kinds of mortar used in setting practically one single block. The worst quality is the dark mortar employed mainly in the rough walls. It resembles the dry Nile mud. More lime is contained in the light mortar used mostly for the filing between the casing and the core of the wall. In its strength it is almost identical with the constructional mortars of the later ages. In a number of cases we come across pinkish mortar of surprisingly good strength. It was mainly used for retouching the flaws in the stone and the walls, for jointing of all kinds and also for fixing the pin pits for example. Especially interesting is the employement of this outstanding mortar for the joints of the blocks over the mortar of inferior quality. After application it was pressed inwards with a pointed tool which left a distinct line. The manner is practically the same as that of present-day masons. It has not yet been possible to carry out a chemical analysis of the mortar.

On the site of the Mastaba at several places there was a sort of canal. From space no. 25 a stone channel leads to the court where it divides. Then it was proved that the south arm between the first corner pillar and the neighbouring pillar continued eastwards towards the offering table; there are remnants of a drain pit. From there the waste led symmetrically under the east outer wall out of the Mastaba. The draining system seems to have been little developed and therefore the purpose was not to lead away the rain water but more probably the liquids from the libation; also it was thus possible to wash the offering places.

The characteristics of the technological aspect of the construction of the Mastaba could be complemented by the analysis of the bonding of the walls and the surfaces. For the present it will be sufficient to say there have been no special discoveries in this respect in the Mastaba of Ptahshepses. The walls are not bound between each other, but only loosely appended. The bonding of the blocks and the casing show unfamiliarity with the later constructional principles. In the corners, especially in the inner ones stone teeth appear reminiscent of the technological feeling for wood rather than stone.

It is necessary to say that in many places the excavations required quick safeguard measures to be taken. The bricking-up of the unstable parts was limited by the technical possibilities of the native workers but it was always done in accordance with the principles of the preservation: it was necessary that the new origin of the masonry in question was seen at first sight. It is regrettable that a clue has not been found for defining the height of the Mastaba. Neither has it been found out in what manner the outer walls were finished. Two slabs found there have a considerably sloping edge on one side and indicate that there may have been a pin fixed in their lower part. One of them was secondarily used for casing. This is not sufficient starting point for proving the structure of the roof, though.

A tentative outline of the history of the structure will be confined to several ideas only. If we look at the ground plan or if we actually are in the Mastaba, we can see that its whole comprises two main parts. The massive Initial Mastaba itself would have been enough for the constructional plan required by the cult and the burial customs of Dyn. IV and V. As in the other necropoli of the Old Kingdom in the constructional aspect the Mastaba appears as a coherent mass limited by the outer walls in the interior of which the necessary spaces came into existence. As regards substance and space it is an advanced type of filling structure reminiscent of a truncated tumulus.

The east and south adjoining systems of the chambers are, on the contrary, constructed so that the walls limit the space in accordance with the plan and the building-up of the ground plan. We do not intend to deal with the starting points of the two constructional processes, for which there are a number of analogies, though not varied in their layout.

Since the beginning of the Czechoslovak excavations it has been clear that the Mastaba of Ptahshepses was not built all at once. According to Reisner's classification of the constructional processes the respective constructional stages of a Mastaba in a royal necropolis of this type were gradual. First the massive core was built, the shaft and the burial chamber, the cult chapel, then the place was decorated. The respective stages are variable enough and moreover cannot be dated; sometimes they lasted for more than one generation. The longer the person lived for whom the Mastaba was built, the more complicated its construction could have been—the social position taken into view, of course. In our case we shall start from a few most probable circumstances.

Ptahshepses was about the same age as Nyuserre whose son-in-law, vizier and overseer of all royal works he was. Niuserre probably reigned for 31 years but the construction of Abusir necropolis could have begun about thirty years before his accession. As the overall layout of its foundations shows,

it could hardly have been planned as a whole from the beginning. But the spacing of the pyramids of the kings Sahure, Neferirkare and Neferefre shows there could have been a kind of unifying idea. Between the first two pyramids there is enough space for another, which should have been that of Niuserre. There is no need to explain why it deviates from the line, even if this could be explained. It is important for us to know that the oldest constructional stage of the Mastaba of Ptahshepses was in its geometry exactly related to the pyramids of Sahure and Nyuserre. This is our approximate terminus post quem. It corresponds to the Initial Mastaba. The neighbouring Mastabas — those between our Mastaba and the Mortuary Temple of Niuserre—have a number of similar features.

The foundation of the Mastaba in its first constructional stage need not necessarily be related to Ptahshepses. The inscriptions found there confirm the idea: the name of Ptahshepses was omitted from the blocks. The old core of the Mastaba is to be considered the work of one constructional stage even though the differences in the material employed and the manner of its dressing could indicate something different. The decisive thing is the fulfilling of the constructional plan and not the isolated changes in the technology. Those can be explained by the alternation of the quarries used for material and the different workers. The period of the construction of the core of the Initial Mastaba seems to have been long. It is disputable whether it was ever finished. Apart from the remnants of the casing on the east side, which is surprisingly thin, no outer casing is extant (fig. 21). It seems that just before the Mastaba was finished, the decision was made about the extension of its ground plan according to the principles of the division of the structure characteristic of the architecture of Dyn. V.

The remaining casing to the east of chamber no. 6 obviously shows where the second stage should have reached. It included the chapel with the niches, the northern group of chambers and the originally open column hall—now closed column hall no. 3. It need not have been the whole plan of the stage in question, as it is not usual for the ground plan to be L-shaped and not to form a closed rectangle. In this stage the Mortuary Temple of Nyuserre was certainly under construction and Ptahshepses'position allowed him to have a maximum plan in the second stage of the construction of the Mastaba. Apart from the said spaces there should also have belonged the store rooms of the offerings and the pillar court. We can estimate that the court was to start where De Morgan supposed the pillars of the portico of the cult chapel (no. 10) to be. It was to be continued by several other pairs in the southern direction. Several similar pillar courts were preserved at Saqqara.

The idea of the second stage of the Mastaba of Ptahshepses being L-shaped like that of Ti at Saqqara and of the annex being symmetrical along the taxes of the niches and the intercolumnion of the open hall, can be disputed. The entrance into the old part of the Mastaba would have been situated outside the walls of the second stage and the whole would have had two following entrances and would not have been unified in its purpose. It would only have been possible supposing that the Mastabas were two and that is not logical. Therefore we must accept the first variant of the extension of the constructinnal plan in the whole width of the Initial Mastaba.

It remains a problem whether the second stage was ever completed. Much supports the idea that it was not. First we cannot suppose that the finished structures were pulled down to be extended again. The extension of the ground plan rather occured by addition. Besides, although we have evidence of the outer outline of the second stage of the remnants of the casing on the outer side of the east wall of room no. 6, we lack any similar trace on the opposite side in space no. 12. This means that during the construction of the wall adjoining the former open column hall the constructional plan was changed. The situation is not clear in front of the potential south portico of the chapel where we could suppose the existence of more than one pair of columns, and thus the beginning of a similar pillar court. The obscure images of the original or final state of this part of the Mastaba indicate that the original plan was interfered with here unexpectedly. Most probably with the continuing construction the portico was conceived as a smaller pillar hall, to judge from the fragments of the walls annexed to the old part of the Mastaba. Only the next passage led to today's court.

The new decision concerning the large-scale extension of the Mastaba must have been supported by the facts. Ptahshepses probably became "Son of the King" and most probably father of the King's grandchildren. At least the explanation of the erasing of the figures of his eldest son on the chapel reliefs would support this idea. The chapel belonged to this second stage.

The plan for the third stage is exceptionally magnificent and it indicates that the position of Ptahshepses came near the level of that of the King. The pillar court has dimensions of those in the Mortuary Temples, the vast store rooms are being built. Furthermore, the plan comprised also the unexpected hall of the Sun-cult for one or rather two Sun-boats. It is doubtless that the new extension was also facilitated by the fact that Ptahshepses lived, or more exactly, enjoyed his prominent position at court, for a long time. In different circumstances such a constructional change would not have been possible because of the lack of time. Only the royal structures were allotted so much materials, means and labour. Here we can pronounce the hypothesis that the third stage is, besides other things, somehow related to the fact that Ptahshepses held the high post of the overseer of the royal constructions. The supervision and perhaps the direction of the neighbouring Pyramid Complex of Nyuserre without any doubt also simplified in many aspects the construction of his own Mastaba. The supposition is only very vague. That is to say that only in the third stage parts of the Mastaba we find the stone blocks with the pairs of oval apertures. We suppose this was reject material originally intended for the Pyramid Complex of Nyuserre. At the same time, the name of Ptahshepses appears on the stone blocks of the mentioned complex. We could therefore deduce that the structures came into being within the framework of the same organizational effort.

We have already mentioned the improbability of the parts of the pillar court and especially the boat-shaped cavity having ever been finished. Ptahshepses at an advanced age overestimated the possibilities, be it his own or the objective ones.

So far the whole of the Mastaba, several problems excepting, appears in distinct relations as to

its construction and history. Three points expecially remain to be clarified. Building up on the Initial Mastaba during the third stage of development, the face of the court by the south-west passage deviated. We cannot satisfactorily reconstruct the shape of this part nor can we explain the origin of a discrepancy of almost one meter. Was it perhaps necessary for static reasons to extend the annexed wall in this manner? And what was it to support? The following problem is that of the "retreat" of the line again where the first and third stage meet on the west side. Theoretically we can presuppose that the old core got another casing and therefore was doubled. It is improbable, though, and we will have to accept the idea of the interruption of the direct in the place of the joint.

The most complicated question is, however, the final form of the northern elevation. The second stage followed the face of the old core of the Mastaba. The casing of this stage was carried out beginning from the north-east corned and without any interruption continued for a short way along the rough masonry of the old part. It is missing farther on and this part was probably never cased. The supposition that it could have been devastated is not probable, as the structure was soon widened by more than two metres and the wall came to be inside the extremely solid outer walls. The casing of the outer walls is still to be seen there almost in its whole length (fig. 22). The quarrymen would have taken the more easily accessible material.

The reason for the considerable extension is not clear. It is possible that inside the wall existed a length-wide passage or space of some kind. This can be suggested by a partly extant pavement, though it is not of good quality so that it could have served as mere subsurface. It is situated at a height of 1.45—1.50 m above the ground level of the other spaces. The daring hypothesis is hindered by the fact that we cannot estimate the appearance of the higher situated parts of the Mastaba. On the northern side the mentioned casing belongs to the third stage. In spite of that two more fragments of another casing have been preserved made of solid large plates which we know from the parts of the outer masonry of the third stage. The finely grained light limestone, free from flaws, is of outstanding quality and can be connected with the construction of the royal complex. Both the said fragments are set on the outer sidewalk in a rather illogical manner but their authenticity is doubtless. Furthermore the larger of them is in fact a roof plate with rounded edge and a hollow for setting it in another block. Perhaps the existence of the double casing on the north side was brought about by aesthetic needs: the whole Mastaba was to acquire a casing of material of the same quality. The expenditure for the final dressing itself exceeds the idea of the so called private Mastabas.

The description of the stage of the structure after the excavations, the description of the principal aspects of the whole and some details, and the suggested interpretation of this unique monument of Dyn. V show that the Mastaba of Ptahshepses enriches our picture of the culture and art of the Old Kingdom. The structure suggested further investigation also into more general problems, but in itself offers a number of questions to be solved in the future. The prevention of further devastation is a task none the less urgent and socially important.

RELIEFS OF THE MASTABA OF PTAHŠHEPSES AT ABUSIR[14])

MIROSLAV VERNER

The original relief decorations preserved *in situ* covers the walls of a few rooms of the Mastaba of Ptahshepses. At present they cover about 60 square metres but this space was originally much larger. According to preliminary assessment the preserved section represents about one fourth or one fifth fo the original relief decorations. This conclusion is based on the location of the preserved reliefs on the one hand (fig. 23) and the analysis of thousands of relief fragments discovered during the excavations in the Mastaba on the other hand. Scenes that should have been found among the decorations of the Mastaba and that were not discovered either *in situ* or in fragments were also taken into consideration.

THE WAY OF EXECUTION OF THE RELIEFS

In the Mastaba of Ptahshepses three kinds of reliefs are represented: low, incised and sunk. Sunk reliefs are on the pillars and on sections of the architrave in the pillar court. And it certainly was not just by chance that they were used in this very part of the Mastaba. The sharp sun-rays were shining directly into the open court and low reliefs would have thus lost a lot of their effect, while sunk reliefs looked even more plastic. The rest of the decorations consist mainly of low reliefs whose depth varies from about 0.5 mm. to 4 mm. Incised reliefs appear rarely. They can be found mainly in places where there was not enough space left or where the name was added to a finished figure. Paintings are also very rare: one was for instance found in the south-western corner of the portico with a pair of six-stem lotus columns. In this portico and in the cult chapel with three niches some names written in red colour are also added to the figures in the registers.

[14]) J. de MORGAN, op. cit, describes very briefly the discovered relief decoration.

COLOURS

During the archeological season of 1974 samples of colours were taken to be analyzed chemically. On the basis of the results the question of polychromy will be dealt with. It is very complex since the colour convention of some inscriptions in the Mastaba is quite special.[15])

BORDERS

At lower ends of the walls decorated by reliefs there are coloured belts of varying width. The lowest and widest belt is black, then follows a narrower yellow belt, then a thin black one, a red strip (always narrower than the yelow one) and finally again a thin strip of black colour. The individual lines are moreover separated by engraved ones. The side margins of the walls decorated by reliefs are formed by a coloured belt made of blue, red and green strips of the same width, separated by three narrow strips (black, white and black). The upper ending of the surface with relief decorations has not been preserved in any section of the Mastaba *in situ*. The only block that was built in the wrong way into the northern wall of the cult chapel with three niches shows that the upper end of the walls decorated by reliefs was in at least some parts of the Mastaba formed by a wide belt with alternating ornaments *djed* and *kheker* in low relief. On the preserved fragment there alternate couples(?) of these ornaments (fig. 24). In some parts of the Mastaba the upper end was formed by a belt of *kheker* ornaments, as other discovered fragments of reliefs show.

A BRIEF DESCRIPTION ON THE RELIEFS

In case the scenes are divided into a few registers, their description follows the intended sequence based on what they represent. In the Mastaba of Ptahshepses there was not found a uniform direction in which the registers would follow one after another. For instance, in the cult chapel with three niches it seems logical to read the registers on the northern wall from the upper end down to the lower one. The scenes in the upper registers represent different kinds of work in the garden while the lower ones contain scenes showing results of the work and arrangement of garden fruit on tables. On the opposite southern walls of the cult chapel with three niches there is a scene representing a display of poultry: this one begins in the lowest register and continues upwards. The significance or sequence of individual registers are mostly accentuated also by their height. In cases where the registers are read from the bottom upwards their height gradually diminishes.

[15]) W. S. Smith, A History of Egyptian Sculpture and Painting in the Old Kingdom (Oxford—London 1946), p. 259.

1. THE "PORTICO" WITH A PAIR OF SIX-STEMS LOTUS COLUMNS (ROOM NO. 3).

The function of this room with a couple of six-stem lotus columns was misinterpreted because its excavation carried out by De Morgan had not been completed. The whole eastern section through which it had originally been possible to get into the main portico with a couple of eight-stem lotus columns, was walled up. Into this wall two blocks decorated with reliefs had also been built by mistake. One is smaller, the other bigger. In the upper part of the smaller block there are legs of running sailors and in the lower half remnants of two big boats with oarsmen and hieroglyphic inscriptions. The decoration of the bigger block is set into three registers in which there are remnants of scenes representing bringing of offerings (onions etc.). In the southern section of the eastern wall there are remnants of two registers. In the upper one there are legs — from the knees down — of a big figure (undoubtedly representing the tomb owner) and in the lower one a number of men carrying little cases and cloths (?).

THE SOUTHERN WALL

There remained three registers of the original relief decorations on this wall. In the lowest one there is a scene depicting three *freight-boats* (rowing vessels with cabins) loaded with bags, parcels and vessels with corn and other products (fig. 25). The hieroglyphic inscriptions consist of either names of the kinds of loads or titles of some people on the boats. Besides rowing and steering there are depicted also other activities like pouring out water that soaked through into the ship. In the second register there is a line of *running sailors*. In the third one, which was preserved partially only, there is a remnant of a big boat with oarsmen.

THE NORTHERN WALL

Of the original relief decorations of this wall only two incomplete registers have been preserved. In the lower one there is a couple of men carrying a little case (the figure of one of the men is unfinished in the relief and the rest of it is painted) and legs of six other men. To some other figures hieroglyphic inscriptions are added with their names and titles. In the small piece left of the upper register there are legs of two figures of bearers.

THE WESTERN WALL

This wall is divided into two sections by the entrance to the cult chapel with three niches. In the northern section there are remnants of two registers. In the lower one bringing of arm-chairs is depicted. The hieroglyphic inscription written above the line of carriers describes this activity. In the upper

register, only partially preserved, there are remains of four figures of bearers. Three of them are accompanied by their names and titles.

In the southern section of the western wall there are also remains of two registers. In the lower one there is depicted the bringing of arm-chairs again and in the upper one there are remnants of four figures. Relief decorations are also on the wall of the passage from the portico into the cult chapel. There are a few smaller-size scenes in the southern half. The first scene (starting from the portico) depicts butchers portioning two oxen. The inscriptions above the scene are related to the individual acts. Above the register with the butchers there is a partially preserved family scene in the middle of which is a big figure of Ptahshepses (only his legs from the knees down are preserved). His son is standing in front of him and his daughter behind him; his wife is portrayed standing behind the daughter. Another section of the passage is decorated by a big standing figure of Ptahshepses holding a stick in one hand and a scarf in the other (fig. 26) A long hieroglyphic inscription with his name and titles is above the figure (fig. 27). In the place where the passage is narrowest there is a scene depicting Ptahshepses sitting in an armchair and holding a long stick in his hand. In front of him there is his wife Khamerernebty sitting on her heels. The hieroglyphic inscription above Ptahshepses states his titles and name, while the inscription above his wife contains her titles and name. In the place where the passage widens to open up into the cult chapel there are depicted Ptahshepses' sons in two registers; the inscriptions accompanying their figures again state their titles and names. The figure, name and titles of the first-born son are carved off.

The scenes in the northern half of the passage going from the portico into the cult chapel are almost like mirror reflections of those in the southern half. They differ from one another in small details only.

2. THE CULT CHAPEL WITH THREE NICHES (ROOM NO. 4 — FIG. 28). THE EASTERN WALL, NORTHERN SECTION

Into the highest preserved section of this wall in de Morgan's excavations there was by mistake built a block with Ptahshepses' name and titles.

The first register from the bottom shows a scene from a sculptor's workshop: a group of sculptors is putting final touches to three statues, two of which are nearly completed. One of them represents sitting Ptahshepses and it is painted light red with little black dots, which indicates that the statue is made of red granite. It is possible that it represents the one whose lower part was found in the portico with six-stems lotus columns. All three sculptors working on it are polishing it with stones. The other statue represents standing Ptahshepses holding a long stick in his left hand and a scepter in the right one. Two sculptors are adzing it and the third one is polishing it. In the third

case the standing statue of Ptahshepses is also being adzed by two sculptors and polished by the third. All three figures of the sculptors are accompanied by their names and titles.

The second register from the bottom is very narrow. In its left section there is a couple of kneeling *metal-blowers* blasting fire by means of long pipes (fig. 29). There is a hieroglyphic inscription above the furnace. In the right section of the register there is a couple of partially preserved figures of metal-beaters hammering the metal into the required shape. Between their heads there is a partially preserved hieroglyphic inscription. By the edge of this register there are depicted a few vessels.

The third register is again very narrow. The themes of the decorations are the same, being just arranged in a reverse order. In the left section of the register there are a few vessels. A couple of *metal-beaters* are set to the right. The space between them is filled in by an inscription. The middle section contains vessels and a little case. In the right section a couple of metal-blowers are blasting fire in the furnace by means of long pipes. Above the furnace there is an inscription.

The fourth register contains scenes of *bending* (?) *the wood*. The couple of sitting joiners in the left section of the register is only partially preserved. In the middle of the register another two joiners are damping poles. In the right section there is a rather unusual scene of bending (?) wood on a simple apparatus consisting of a massive fork and two poles which are fastened to it and which the joiners manipulate when bending the wood. The individual acts depicted in the register are accompanied by short inscriptions.

The fifth register is preserved partially. Only legs of three standing figures and a bent one are possible to identify.

THE EASTERN WALL, SOUTHERN SECTION

On this wall a *market scene* is depicted. The first register from the bottom shows a scene of arranging products. The right section is divided into two halves. In the lower one there is a cage with birds and a few vessels and in the upper one a man is sitting in front of a basket whose contents he is putting into a package that is being taken by one of the men standing in the left section of the register. There is no inscription in the register.

In the left section of the second register there are two standing men with products and the right register is divided into two halves. In the lower half there are two haunches and plucked geese prepared on a big tray and in the upper one a sitting man is handing products to one of the two men standing in the left section of the register. There is no inscription in the register.

In the left section of the third register, two men are putting pieces of meat into prepared vessels. The right section is divided into two halves: in the lower one there is a big bowl with pieces of meat and in the upper one haunches are arranged on a tray. There is no inscription in the register.

The fourth register is preserved only partially. In the left section there is again a couple of men carrying meat and in the right one a piece of meat is on a tray. In this register there is no inscription either.

THE SOUTHERN WALL, EASTERN SECTION

The first register from the bottom is badly damaged. Its left section is divided into two narrow registers in which there are pieces of meat and vessels. From the scene in the middle of the register there remained only the bow of a light papyrus boat coming from a papyrus thicket. One man is standing in the water holding the boat by the bow and the other is straddled on the boat. On the bow there is a cage with birds. In the right section of the register there is a partially preserved group of four *bearers carrying a cage with birds, a calf, flowers* and others. There is no inscription on the preserved sections of the register.

The second register is incomplete. Its left section is divided into two halves in which there are depicted a goose, melon, vessel, and others. The middle and right sections of the register are filled by eight offering bearers. To one figure of the bearer is added his name.

The third register is considerably damaged. In its left section there is a scene of *milking a cow*. The inscription above the cow depicts the scene. In the right section of the register there is a group of four men carrying a basket with fruit, vessels, flowers, and others.

The fourth register is almost completely damaged. Only in its left section there can be identified legs of a cow and calf.

The fifth register is damaged completely; only the bottom register line can be identified.

THE EASTERN JAMB OF THE DOOR LEADING FROM THE CULT CHAPEL INTO THE PILLAR COURT

In the first register from the bottom there is depicted a man bringing *a gazelle*. The animal is carved off completely while the figure of the man only partially (the head, both forearms, and the body from the waist down). The inscription with the name of the gazelle is also carved off. This might have been done by a later visitor of the Mastaba who considered the gazelle to be a Sutekh's animal and that is why he destroyed it in this way. The register is moreover remarkable because it gets narrower towards the door. Is it an attempt to depict objects in perspective? (Fig. 30.)

In the second register there is a man bringing *an antelope*. Above it there is a short inscription with its name. The register is equally wide but it is slanted towards the door.

In the third register there is a man bringing *a capricorn*. Above it there is a short inscription with its name. The register is slanted towards the door.

The fourth register is badly damaged. There is depicted a sitting man feeding a little *lying ox* from a wide bowl. Above the ox there is a short inscription with its name. The register is again slanted towards the door.

The fifth register is almost completely damaged. There can be identified only legs of a standing man and a remain of an inscription.

THE SOUTHERN WALL, EASTERN PART

The entire right section of this wall is filled by the life-size figure of Ptahshepses leaning against a long stick. The figure is damaged from the chest upward. The hieroglyphic inscription in front of Ptahshepses that briefly described the main decoration theme of the wall, a display of birds, is also preserved only partially. Ptahshepses' two oldest sons hold on to his stick. The short inscriptions above their heads contain their names and titles. Behind the figure of Ptahshepses, right by the end of the wall there are two shortened registers with two bearers. The space in front of Ptahshepses is divided into a few registers.

In the first register from the bottom there is a beautiful scene with cranes: a man with a long stick is bringing a flock of four *cranes* (fig. 31). The inscription above his head states his name and title. Short inscriptions by the individual birds describe their species in greater detail. This register is widest of all on this wall — the others get narrower in the direction upwards.

The second register contains a flock of six *geese*. Above each of them there is a short inscription marking the respective species.

The third register contains a flock of seven *ducks*. There is no inscription in this register.

The fourth register is filled with five *sitting scribes* writing records into papyrus scrolls. In front of each scribe there are cases with writing articles and papyrus scrolls. There is no inscription in the register.

The fifth register is completely damaged. There can be identified only legs of a few figures of men.

THE WESTERN WALL WITH NICHES

The wall was divided into seven section, i.e. three niches and four narrow walls in between them. On the walls facing the chapel there are relief decorations. In all four cases the figures of Ptahshepses are depicted, being oriented in such a way that all of them face the middle niche, i.e. two couples face one another. Both the side reliefs show Ptahshepses in a short skirt and a wide scarf over his shoulder, a necklace round his neck, his hands hanging by the sides of his body. The two middle pictures represent him in a short skirt, a necklace and a stick in his hand. Above each figure there are remains of vertical inscriptions with his name and titles. Each of them bears a mistake made by the artist. For instance, he designed the ornament by the side figure from the south in a wrong way,

forgetting it was supposed to be there. He made the face contour, then realized his mistake and shifted the contour to the right, leaving space for the border ornament (fig. 32).

THE NORTHERN WALL

Scenes on this wall represent the figure of *Ptahshepses* in life-size *watching various kinds of work in the garden and a presentation of fruit and vegetables.* It follows from the vertical line of the inscription in front of Ptahshepses (indicating briefly the scene) that to the whole composition belonged also the scene with craftsmen in the northern section of the eastern wall (see above). Behind Ptahshepses, right by the end of the wall, there are three short registers, in each of which there is a mortuary priest carrying various objects (fans, cases, vessels, etc.) Short inscriptions in front of them contain their names and titles. Two sons of Ptahshepses hold on to his stick; the text above them states their names and titles (fig. 33).

The scenes in front of Ptahshepses fill a few registers of the same width. It follows from the depiction of the individual scenes in the registers that the plot represented on this wall should be followed from the top down.

The first preserved register is badly damaged. There can be identified only a few walking figures.

The second register is incomplete, its right section is missing. In the left one there are bearers carrying figs, onions, lettuce, and others on trays or in their hands. In the middle section of the register there is an incomplete scene showing gardeners working in a bed of lettuce. On one side of the bed one man is watering the lettuce and on the other another one is cutting it.

The third register from the top. In the left section there are depicted bearers with lotus blossoms, bunches of onion and corn. Then follows a scene with a lettuce bed in which one man is cutting the lettuce and another one is taking it from him. In the middle of the register there is again a group of bearers carrying figs, onions, melons, papyrus stems, corn and others. The decoration of the register is closed by another scene from the garden. Two men are carrying water in vessels and watering a bed of corn and another one of onion. The remaining right section of the register is missing. By some bearers there are inscriptions with their names and titles. Also the scenes showing garden work are accompanied by inscriptions describing the individual acts.

The fourth register is filled by men carrying tables and big wicker-baskets full of garden products: figs, onions, melons, lettuce, papyrus-stems and flowers. Only by some figures there are short inscriptions with the men's names and titles. There are some carved-off inscriptions in this registers (see the passage on carved-off inscriptions in the Mastaba of Ptahshepses).

The fifth register includes five big tables, full of fruit and vegetables. Bearers are carrying more products to the tables (fig. 34). To some figures are added short inscriptions with their names and titles. In this register are also carved-off hieroglyphic inscriptions.

3. THE PORTICO BETWEEN THE CULT CHAPEL WITH THREE NICHES AND THE PILLAR COURT (ROOM NO. 10)

THE EASTERN SECTION, NORTHERN WALL

The wall is considerably damaged. The basic decorative theme is the transport of Ptahshepses on a palanquin. On each side of the light open litter there are eight bearers. Ptahshepses sitting inside has a long tunic on. He is leaning on his left arm, the right one hanging out of the litter. One supervisor is standing by each row of bearers. Above the heads of the bearers there is an inscription briefly describing the scene. Behind the litter is a partially damaged register with Ptahshepses' sons. The figure, name and titles of the first-born son were later carved off. Above this register is a remnant of another one depicting officials. Their figures are again accompanied by inscriptions with their names and titles.

THE EASTERN SECTION, EASTERN WALL

This wall is considerably damaged. It depicts *Ptahshepses surrounded by his family and officials.* Ptahshepses has a short skirt on, is sitting in an armchair and holding a stick. His wife is sitting on the floor in front of him and his daughter is standing behind him. In front of the wife and daughter are hieroglyphic inscriptions with their names and titles. Under the big scene with Ptahshepses and his wife and daughter are two registers. In the lower one there are nine sitting officials and in the upper one just eight, one figure having been carved off. Each figure is accompanied by an inscription with the person's name and titles.

THE WESTERN SECTION, NORTHERN WALL

The main decorative motif is depicted in the scene of *transporting statues of Ptahshepses.* Seventeen men are dragging a sledge on which there is placed a big statue of Ptahshepses. One man is pouring water under the sledge and another one is fumigating it with incense. Above the heads of the bearers is a long line of a hieroglyphic inscription with Ptahshepses' name and titles. The beginning of the inscription is not finished, only the smooth surface is prepared to be written on. The inscription above the man pouring water under the sledge describes his action. The inscription above the statue of Ptahshepses states the kind of the material of the statue and Ptahshepses' name and titles. The remaining space above the bearers' heads and in front of the statue is filled by two registers with bowls and trays of offerings. In the upper half of the wall there is another scene of transporting the

statue of Ptahshepses. In this case the sledge is drawn by only fifteen men; one is pouring water under the sledge and another is fumigating the statue (fig. 35). Above the bearers' heads is a long inscription depicting the scene. Higher above them there are two registers with vessels of offerings.

THE WESTERN SECTION, WESTERN WALL

The main decorative theme is again the *transport of the statue of Ptahshepses*. In the lower half there is depicted a line of men dragging a couple of statues of standing Ptahshepses. One man is sitting on the sledge and pouring water under it and the inscription above him describes this action. Above the bearers' heads is a long inscription referring to the scene of the transport. Higher above this inscription there are two registers with trays and vessels of offerings. The hieroglyphic inscription above the couple of statues states the kind of material they are made of and the name and titles of Ptahshepses. Behind the statues there are two registers in each of which there are two officials and their names and titles. In the upper and considerably damaged part of the wall there is another scene of the *transport of a couple of statues of Ptahshepses*.

4. THE PILLAR COURT (ROOM NO. 13)

There are altogether twenty pillars in the court and only one of them in the north-eastern corner is not decorated. On all the others there are sunk reliefs depicting Ptahshepses dressed in a short skirt, with a necklace round his neck and a long stick in his left hand. In the other hand he holds either a scarf or a little roll. Above his head there is always an inscription in sunk relief containing his name and titles. The upper sections of all the pillars, with the exception of three fragments with remains of Ptahshepses' titles, are destroyed. The figures of Ptahshepses are oriented in a special way in order to take a visitor through the whole court and out to the false-door in the north-western corner above the sarcophagus chamber (fig. 36). An architrave was placed on the pillars; only three pieces of it were found, one of them being the corner piece. On each piece there are sunk reliefs depicting Ptahshepses and in front of the figure there are three horizontal lines of text with his titles and one vertical line with his name. The titles on the individual pieces of the architrave are not the same: there are various titles used, just like on the tops of the pillars above the figures of Ptahshepses. At least on two pillars his titles began with *s3-nśw*, as the discovered fragments of the pillar tops show.

5. REMNANTS OF RELIEF DECORATIONS IN THREE OTHER PLACES IN THE MASTABA

On the southern wall of the pillar court, close to the door in the south-western corner of the court there is a piece of the lower section of a register with legs of *walking men* and remains of two vertical inscriptions with their names.

Another fragment of relief decorations is in the room no. 15 south of the pillar court. On the northern wall of this room there is an incompletely preserved *scene with a ship*. It is a big wooden ship with an erected mast but its sails rolled down. There is a vertical inscription by the mast. On the eastern wall there is a lower half of a standing male figure and in front of it an incomplete vertical inscription with the name.

The third place in which original relief decorations remained is in the oldest construction phase (room no. 25). Above the entrance into the slanted down-going shaft into the sarcophagus chamber there is the lower section of the *false-door with geometric decoration*. On the wall opposite the false-door there is a very small fragment of a relief decoration: the lower half of a standing male figure.

CARVED-OFF RELIEFS IN THE MASTABA OF PTAHSHEPSES

In the above brief description of relief decoration there were also mentioned some reliefs in the Mastaba that were carefully carved off. These were found north of the cult chapel with three niches, in the chapel itself and in the portico leading from the chapel into the pillar court. One very important scene damaged by erasing is on the left wall of the passage from the portico with the couple of six-stems lotus columns into the cult chapel with three niches. In two registers there are depicted the six sons of Ptahshepses, three in each one (fig. 37). The figures of the sons are facing the portico, i.e. also the visitor entering the tomb. In front of each figure there is a horizontal line of an inscription with the name and title of the son. The space in the upper section of each register, above the sons' heads, is filled by a horizontal inscription with the titles and name of the tomb owner — Ptahshepses: *Ḥ3ty-ᶜ3, śmr wᶜty, ḥry-tp Nḫbt, ỉry nfr ḥ3t Ptḥ-Špśś*. The figures and inscriptions in the first register from the bottom are slightly bigger than the same ones in the second register. Thus the figure that was made to look most significant was that of Ptahshepses' oldest son. And it was this very figure that was carved off and the surface smoothed down again. Yet there can be discerned clear outlines of the head, shoulders, left hand and left leg of a standing figure and also remains of some signs of the vertical inscription in front ot it. The figure, judging from the preserved tracess, was basically the same as the other five figures of Ptahshepses' sons. When studying the slight remnants of the signs carefully, it is possible to reconstruct the whole vertical inscription in front of the figure. The beginning explains more precisely this son's relation to the father: *s3.f śmśw*. The middle part of the inscription contains titles: *śmr wᶜty, ḫry-ḥbt*. The end of this inscription deserves best attention since it is formed by the name of the first-born son. The name moreover contains a royal cartouche. It is obvious that a precise identification of the royal name in the cartouche might be important for the precise determination of the date of the whole Mastaba. Professor Žába, who was the first to consider the problem of this carved-off inscription, assumed that there were traces of king Sahure's name in the cartouche. Then he reconstructed the name of the first-born son as *'Itf ⟨.ỉ⟩ — S3ḥw-rᶜ*. This reading

is improbable, however. There can be seen obvious traces of three signs in the cartouche. The first one is formed by the fish Tilapia nilotica, of which there can be discerned its jaws, tail and a part of the fin, i.e. *in*. From the second sign there remained only the end and it might be reconstructed as *n*. The last sign is formed by an almost complete *i*. The name in the cartouche could thus be reconstructed as *'Ini*, the name of King Nyuserre. The sign following the cartouche cannot be read as *t*, but *ḫ*^{c}. The last sign obviously reads *f*. Thus we can reconstruct the name of Ptahshepses' first-born son as *Ḥ*^{c}*.f-'Ini* (figs. 38 and 39). Ranke[16]) does not show evidence of this very name, but he cites an analogical formation from those times, e.g. *Ḥ*^{c} *. f-Wśr-k3 . f*, *Ḥ*^{c} *. f-Snfrw*, and the like. The discovery showing that the name of Ptahshepses' first-born son contains the name of Nyuserre and not that of Sahure is significant for dating this section of the Mastaba (on problems concerning the construction phases of the Mastaba of Ptahshepses see the preliminary report on the architecture).

The first-born son of Ptahshepses, Khafini, is followed by two more sons, Kahotep and Ptahshepses depicted in the same register. The series of his sons then continues in the register above. The first figure (the fourth son) in this register, which is narrower than the previous one and whose relief decoration is not so carefully executed, deserves special attention. In front of this son's figure there is an iscription: *s3 . f . śmśw, śmr w*^{c}*ty, ḫry-ḥbt Ptḥ-špśś*. When closely examining the inscription it is possible to infer that there had been carved another one of older date before. Later on it was replaced by the inscription determining a new "oldest" son of Ptahshepses. In the row of sons, however, he is not the first bearer of the father's name but the second one. Thus the reason for this cannot be seen in his name coinciding with that of the father or in the fact that this son's figure is first in the second register. We must look for the cause somewhere else. Very helpful is another scene with Ptahshepses' sons in another part of the tomb. It is in the northern wall of the eastern section of the portico leading from the cult chapel with three niches into the pillar court: Ptahshepses carried in a litter is followed by four of his sons. The figure of the first son is carved off in this case too, and so is the original inscription, of which only the beginning is preserved: *s3.f śmśw mr.f* . . . ? Then follows the second one: *s3.f śmśw* (sic!) *mr.f, śmr w*^{c}*ty, ḫry-ḥbt, ḥm ỉśt Ptḥ-špśś*, the third: *Ḥm-3ḫt* and the fourth: *Nỉ -św -ḳd*, i.e. sons who follow the new "oldest" son in the previous scene from the second register in the cult chapel. It is remarkable that the carved-off first-born son (Khafini?) and the newly established oldest son Ptahshepses (Junior II) are followed directly by Hemakhet and Nisuked, while their older brothers Kahotep and Ptahshepses (Junior I) were omitted. This fact leads to an assumption that the erasing was aimed not only against the first-born son but also his two younger brothers. There might have been serious family reasons for this act. It is possible that Ptahshepses was forced to take this step after he had married princess Khamerernebty whose children had to be given preference to those by another woman?? Khamerernebty appears in the preserved relief decora-

[16]) H. Ranke, Die ägyptischen Personennamen. I (Glückstadt 1935), p. 265.

tion on the walls of the entrance from the portico with the couple of six-stems lotus clumns into the cult chapel with three niches and on the eastern wall of the portico leading from the cult chapel into the pillar court. These belong to the first extensive additions to the original Mastaba. It is a great pity that the reliefs of the original Mastaba were destroyed, with the exception of a negligible fragment. They might have offered a key to Ptahshepses' family relations that were obviously very intricate. This rather complicated situation is moreover made even more confusing by the discovery of two graffiti of Khamerernebti on core masonry blocs of the original Mastaba (for further details see the following report).

We can also merely assume that Ptahshepses' supposed renouncing of his first-born son and two others was connected with two more remarkable facts. The first concerns the development of Ptahshepses' social status. Professor Žába discovered fragments of pillar tops close to one of the pillars in the northern section of the pillar court (as stated above, pillar tops are missing). On the fragment there were in two cases remains of an inscription in sunk relief that contains the title *s3 — nśw*. It is obvious that this is part of the titles preceding Ptahshepses' name on the pillars. This would mean that in this section of the Mastaba Ptahshepses' career reached such an immensely high level (in other places of the tomb this title does not appear). After all, if it had not been for Ptahshepses' incredible career it would not have been possible to go on building additions to his tomb whose architecture exceeds that of any common private tomb and gets close to almost a royal tomb.

The carved-off reliefs on the walls of the rooms between the cult chapel with three niches and the northern outer wall of the Mastaba are considered to be the second fact that might have been connected with the carved-off pictures and names of Ptahshepses' first-born son and with the intended omitting of two more of his sons. The reliefs were laid out into a few registers on each wall. When the lower ones are suitably lit there can be identified rows of walking figures. Above them there is another register on one of the walls: there are sitting figures on it, a scene with heaps of offerings and carved-off titles and names in front of the figures.

After close investigation carried out inside the chapel with three niches it was found out that the relief decoration on the whole northern wall was also considerably changed. There were also discovered remains of erased inscriptions originally accompanying other scenes(?) and also clear traces of carved-off horizontal register lines. All the erasing and changing of reliefs in the Mastaba of Ptahshepses may not have a common cause but they may just as well have it. The complex analysis of all the finds from the field of architecture, construction graffiti and archeology should cast a new light on these problems.

INSCRIPTIONS AND MARKS ON MASONRY BLOCKS IN THE MASTABA OF PTAHSHEPSES

MIROSLAV VERNER

During excavation there were discovered numerous short inscriptions and marks on the core blocks of the walls of the Mastaba of Ptahshepses. Their total number is about 370, 150 of them including marks and 220 inscriptions. The precise number has not yet been determined because a few tens of those marks were preserved either in fragments or they have not been documented completely; in the future it will be possible to complete some of them or document them better. To these inscriptions and marks there must be added also numerous construction lines — vertical, horizontal and diagonal — that form a dense network on core blocks of some walls.

The inscriptions and marks are executed in three colours. Red is most frequent (in more than 90 % of inscriptions and marks), but its shade is not always the same. Red-brown is most common and inscriptions and marks written in it usually cover the whole wall of a block. The second large group consists of smaller inscriptions and marks written in dark red colour. Construction lines are always executed in red colour, with only one exception when a levelling line indicating the position of pavement is drawn in black charcoal. In cases of some inscriptions executed in charcoal it was found out that they were sort of sketches later covered by larger inscriptions of identical contents written in red colour. Finally, there also sporadically occur inscriptions in yellow colour. The inscriptions and marks were written with a brush and their size varied from a few millimetres to a few decimeters. Their forms were also preliminarily stated to vary considerably. On the whole we can say that the complex of inscriptions and marks on masonry blocks of the Mastaba will contribute a great deal to deepening our knowledge of hieratic writing of the Old Kingdom.

As to the contents, the material under investigation is very complex and has to be analyzed as one whole and in connection with the architectural pattern of the Mastaba of Ptahshepses. In the preliminary report we therefore want to avoid classification based on the assessed meaning of inscriptions and marks[17]). Our classification respects only formal criteria and is based on the distinction among individual marks and inscriptions, inscriptions formed by names only or by titles and names, or dates, titles and names, and the like.

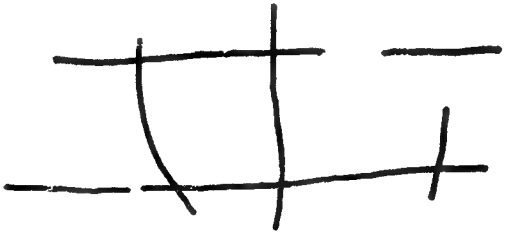
[17]) There is a numerous comparative material concerning the subject. Basic bibliography see in G. HAENY, Die Steinbruch- und Baumarken. (Das Sonnenheiligtum des Königs Userkaf II, pp. 23—47.)

I. INDIVIDUAL MARKS

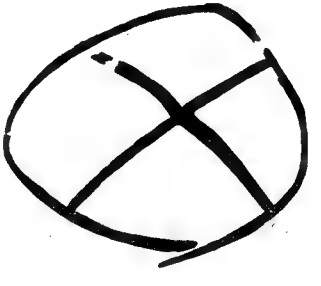
Individual marks represent the most numerous group among our finds of inscriptions on core masonry blocks. So far, 146 of them have been discovered and documented and any further construction and archaeological research, for instance of the layer under the floor, might increase this number. In the Mastaba of Ptahshepses, marks are written almost exclusively in red colour and quite exceptionally there appears a mark sketched lightly with charcoal. The red colour occurs in different shades, which need not always indicate another kind of colour — the fact may be accounted for by weather conditions and the quality of the stone on which the respective mark was written. The size of individual marks varies considerably: some of them are only a few centimetres large and others over a metre. This variation is also documented in cases of a single mark. A great number of individual marks is formed by a hieroglyph, for instance *ḏd*, *nfr*, *ỉr*, and the like (see graffiti nos. 1—2). The remaining part consists mainly of simple figures (see graffiti nos. 3—5 but it includes also marks of quite elaborate graphic

Graffito no. 1

Graffito no. 2

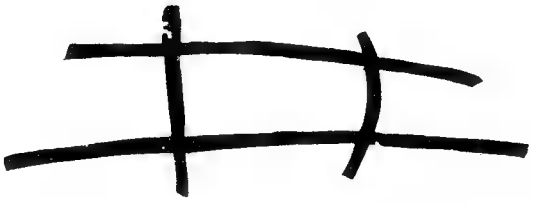


Graffito no. 3

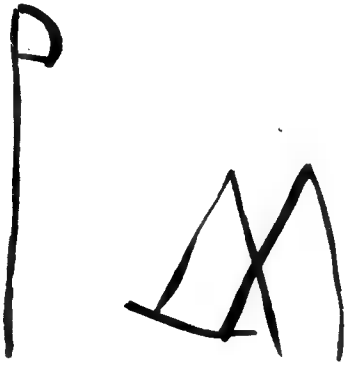


Graffito no. 4

forms (see graffito no. 6). Marks are not always written in the same place on the blocks: they are mostly in the centre of the wall of the block, but in some cases they are in the corner or there are only parts of them left on the bloc, which means that it was broken into pieces. Marks are usually written on the blocks in correct positions and only a small number of them were turned with the blocks on one side or upside down.



Graffito no. 5



Graffito no. 6

II. 1. THE PERSONAL NAME

2. THE TITLE

3. THE DATE

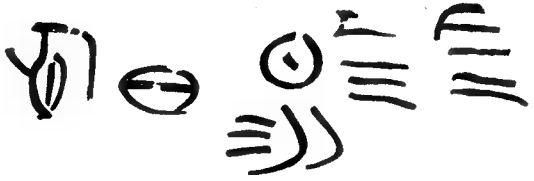
There are not many inscriptions containing just names (see graffito no. 7). In a few cases the name is *Pṯḥ-špśś*, which is most probably the tomb owner's name. Mark positions on the blocks, however, do not exclude the possibility that the names were preceded by titles or dates or both. The same is true about the two other small categories of inscriptions, one of which includes only titles and the other just dates, names might be missing.

Graffito no. 7

III. THE DATE AND THE NAME

This combination forms the second most numerous group of inscriptions on the masonry blocks of the Mastaba of Ptahshepses. Names that occur here vary to a great extent, but there was discovered a higher frequency of the same name in a certain section of the building. Some names, however, appear in all its parts. Among these names there very often occur those we know from the reliefs in the Mastaba, such as mortuary priests and Ptahshepses' subordinate officials. The number of coincidence would probably be even higher if there had been preserved complete reliefs of the Mastaba and not only of its smaller part. The dates accompanying names include statements of the respective months, parts of the season and days. Dates that accompany the same names vary considerably. All three seasons of the year are represented but mostly it is *šmw* (see graffito no. 8) and only scarcely *prt* and *3ḫt*. Records of the seasons appear in different sections of the building. The preliminary research did not show any direct relations between the course of the seasons of the year — or that of months and days within the same part — and the supposed stages of the construction of the Mastaba of Ptahshepses.

A small group within this category includes dates followed by the name of Ptahshepses (i.e. the name of the tomb owner?).



Graffito no. 8

IV. THE TITLE AND THE NAME

The third most numerous group of inscriptions on masonry blocks contains the combination of a title and a name. Here we also encounter the situation that has been already mentioned in category III: frequently there occur names and titles of people we know from the relief decoration in the Mastaba. Most often there appear titles *ỉry-ᶜnt* (see graffito no. 9), *šḫḏ pr-ᶜ3* (see graffito no. 10), *ỉmy-r ỉs, ỉmy-r ỉswt* and *s3b sš* (see graffito no. 11). The preliminary analysis shows higher frequency of occurrence of some names and titles only in certain sections of the building or on the blocks of the same kind of limestone, and the like.

A separate group includes inscriptions with the name and titles of Ptahshepses, the tomb owner,

This combination appears in there variants:

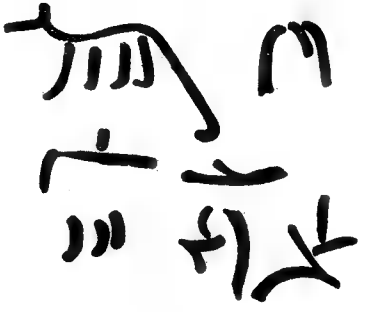
1. *śmr wᶜty Pṯḥ-špśś* (see graffito no. 12).
2. *ḥ3ty-ᶜ Pṯḥ-špśś*
3. *ḥ3ty-ᶜ śmr wᶜty Pṯḥ-špśś* (see graffito no. 13).

Preliminary research showed certain relations between the location of the above mentioned variants of Ptahshepses' titles and the building stages of his mastaba. In the oldest sections of the Mastaba

Graffito no. 9

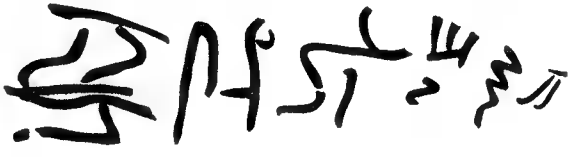
Graffito no. 10

(the south-western sector) there have not so far been discovered any inscriptions that might be unequivocally interpreted as Ptahshepses' name or title. However, there were discovered two inscriptions in this part of the building (one in the northern and the other in the western core of the enclosure wall of the Initial Mastaba (which contain the title and name *s3t-nśw Ḥᶜ-mrr-nbtj*. Supposing that it is the name of Princess Khamerernebty, the daghther of King Nyuserre, there rises a complex of questions concerning the history of the construction of the Mastaba of Ptahshepses, its relations to that of Princesses at Abusir, and so on. The problems are of great historical significance and it would be rash trying to solve them in this preliminary report.



Graffito no. 11

Graffito no. 12



Graffito no. 13

V. THE DATE, TITLE AND NAME

So far this combination is represented by some two tens of inscriptions. It is probable that in some cases there was preserved either a name or a title only and that originally the number of inscriptions had been higher. The combination of a name with the date and title has been so far discovered in three cases:

Nj-ᶜnḫ-Rᶜ (*sḫḏ pr-ᶜ3*)
Dw3-ḥp or *Ḥp-dw3* (*?*) (*s3b sš*)
Ḥtpj (*imy-r iswt*) (see graffito no. 14)
Ḫnmw (*imj-r iswt*)

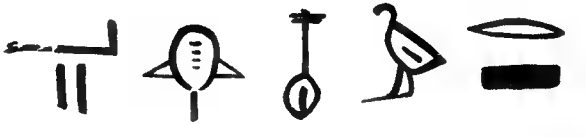
However, the names of these officials appear in some other inscriptions on masonry blocs of the Mastaba only with titles and without dates or, on the contrary, with dates but without titles. Yet these evidently are not damaged inscriptions with missing sections. It should be noted that with the exception of *Ḫnmw* all three remaining names and titles occur in reliefs of the Mastaba of Ptahshepses.

Graffito no. 14

VI. BUILDING INSTRUCTIONS

The inscriptions that may be included under this type are not numerous. In all cases discovered so far the instruction is the same:
mḥ 2 ḥr nfrw r inr (*?*) (see graffito no. 15)

These inscriptions are always placed right under a horizontal line with a small triangular arrow pointing down. If we measure in the direction of the arrow we always get down to the floor of the Mastaba after 104 cm, i.e. two ancient Egyptian cubits. The above mentioned instruction is thus necessary to be interpreted in accordance with this measuring.

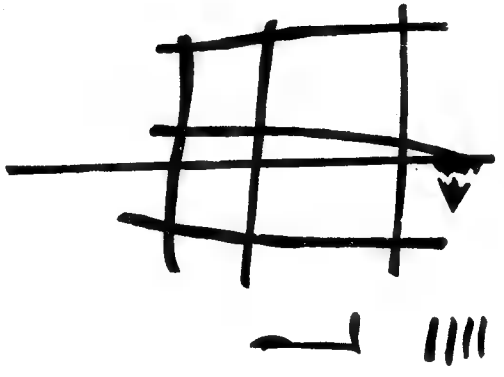


Graffito no. 15

VII. MEASURES

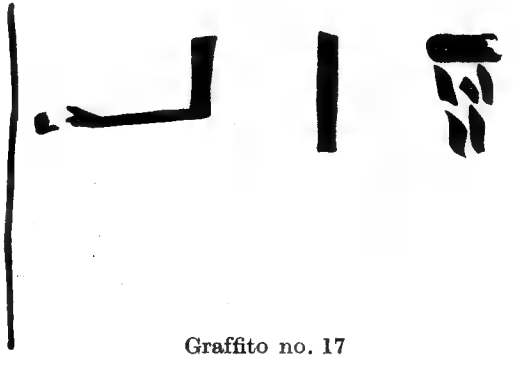
Linear measures very often appear together with horizontal and vertical lines. There is almost always a triangular arrow on the line near the measure: it indicates the direction of measuring, but sometimes it shows, for instance, how far and in which direction wall casing should have been put, and the like. In the Mastaba of Ptahshepses there was discovered evidence of the use of the following linear measures:

1. Cubit, which is the most frequently used unit on the core blocks of the walls. On some well-preserved core blocks there is a dense network of vertical and horizontal lines with numerous figures in cubits indicating the thickness of wall casing, the height above the floor level cubit by cubit and so on (see graffito no. 16).



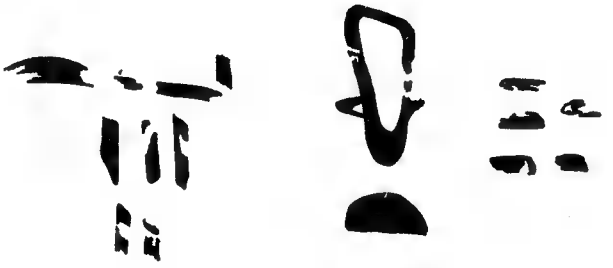
Graffito no. 16

2. Palm, the measure that is smaller than one cubit. Its occurrence was rare (see graffito no. 17).



Graffito no. 17

3. Foot!? During the excavation season of 1968 Professor Žába discovered two cases of use of this measure in the south-western section of the Mastaba of Ptahshepses. In both cases the measure is written distinctly in the form of a sandal seen from above. Under the mark there is the phonetic component *t* in both cases again so that the whole undoubtedly reads *ṯbt*. In these two cases the same instruction is given: *mḥ* 5, *ṯbwt* 5 (see graffito no. 18). So far it has not been ascertained to what both the figures are related, which makes their interpretation more difficult. The logic of both the figures indicates that 5 *ṯbwt* should be less than 1 *mḥ*, i.e. 52 cm. Thus the linear measure in question should not be longer than 10.4 cm (i.e. 52 cm divided by 5) and shorter than 7.4 cm, i.e. one palm. If the measure had 9 cm, it might be one foot taken not by its length but by its width. These deliberations are preliminary and they require further studying of the situation on the spot and in cooperation with an architect or finding more comparative material. Consultations in the department of the Egyptian Dictionary, DAW Berlin, did not disclose any such material. The meaning of both the inscriptions in question was not cleared up by the occurrence of the term *ṯbwt* in Papyrus Reisner I, either.



Graffito no. 18

VIII. LEVELLING LINES (and the like)

On some wall cores of the Mastaba of Ptahshepses there is preserved a dense network of red vertical and horizontal lines. In some places the horizontal lines are one cubit apart, thus forming a sort of basic network from which other measures on the wall or the room were derived. For instance, in the chapel of the supposedly first phase (room no. 22) there is the above mentioned network of horizontal lines one cubit apart and moreover, there are horizontal and vertical lines on the wall core indicating the height and width of the altar by the western wall of this room. This interpretation was confirmed by the altar preserved in the adjoining chapel (room no. 28). Other lines show how high casing of fine white limestone or floor blocks were to be put, and the like.

On side wall leading from room no. 23 upwards there were discovered red lines indicating not only the slant of this staircase but also the height of the stairs! A similar slanted line was found in about the centre of the southern wall in the room no. 40, i.e. the room with the convex northern wall. It indicates another staircase that might have been planned here to go up.

In the long slanted descending shaft leading from the false-door to the burial chamber there was discovered a red zig-zag line oriented at its beginning and end in the East — West direction. All angles that this line forms are 90°. In this simple way architects of those times most probably managed to have the precise East—West orientation in this long shaft that not only goes down but also turns to the left. In various places of the Mastaba of Ptahshepses there were found other lines, some of which indicate the inclination of the outer casing of the Mastaba, others mark the corners of the enclosure walls, and the like.

The above described inscriptions and marks offer a sample of kinds that were found on the masonry blocks of the Mastaba of Ptahshepses and also of those that have not been discovered. It is for instance quite important that so far there have not been found any names of gangs of workers. Finally, we would like to state that the discovered set of inscriptions and marks will have to be analyzed as one whole, with respect to all building and historical aspects. We would also like to express certainty that this set will contribute to better understanding the organization of big construction undertakings in Ancient Egypt.

SECONDARY BURIALS IN THE AREA OF THE MASTABA OF PTAHSHEPSES AT ABUSIR

EUGEN STROUHAL

During the last four research seasons there were found secondary burials in superposition in some sections of the Mastaba and in its close vicinity. In 1966, the first group of fourteen burials of this kind were discovered in the area of the rooms nos. 15—20. They did not contain any funerary equipment. Only two of them were placed in anthropoid coffins.

In the season of 1968 a great number of burials were found in the area of the oldest building stage of the Mastaba (the Initial Mastaba), in the room no. 23, in the southern and middle offering rooms (nos. 22 and 24) and, first of all, above the burial chamber that was quarried later on. All the burials with only a few exceptions were disturbed often to such an extent that it was not possible to ascertain the rite or appartenance of bones of the individual bodies (fig. 40). On some bones there remained pieces of blackened linen into which the deceased were probably wrapped, and sometimes also pieces of strings of vegetation fibres. Near the bones there were in some cases found remnants of wood from coffins which disintegrated completely — some pieces of the wood showed traces of stucco or remnants of mats. As to the equipment of the deceased, there were most frequently found amulets, especially the sacred eye *wedjat* or column *djed* or in the form of gods (Horus, Anubis, Bastet, Bes, Pataikos and others) and also necklaces of glass beads, in some cases still on original strings. Rarely there were pottery vessels, the most precious of them being potsherds of the so-called Bes jugs. The less frequent finds included shells, especially those of kauri and snails, little brushes of halfa fibres, a stone headrest, small sacks of linen and others. Among human bones there were quite often scattered also animal bones (cattle, dogs, camels, antelopes, crocodiles and others).

Some of the secondary burials from the Initial Mastaba were placed below the floor level in places where the pavement had been torn out or were put on the pavement in places where there used to be the inner casing of Tura limestone. This fact leads us to conclude that the Mastaba had been used as a quarry of refined Tura limestone before it started to serve as a secondary cemetery.

The secondary burials were placed in several layers, starting 50 cm below the floor level and reaching up to 3 metres above it. A number of burials were found in superposition, most frequently in the secondarily quarried shaft above the burial chamber, where there were discovered fourteen superimposed layers with bones from disturbed burials. This fact suggests that the cemetery was used for

an extensive period of time. The earliest burials were deposited soon after valuable limestone blocks had been quarried and before the ruin of the tomb got covered with fresh drifts of the desert sand. Further burials were gradually placed higher and higher as these drifts also grew higher. Tomb robbers repeatedly broke into the tombs, disturbing their contents and getting most of the bones mixed up.

Valuable information about the form of intact burials was gained in 1970 and 1974. The space between the outer stone wall of the Mastaba and the mudbrick enclosure wall, which was evidently built at the same time as the Mastaba, was explored. There was found a total of 112 burials deposited in pits dug into the top part of the disintegrating enclosure wall or right into the drifts of sand about 1 metre below the present surface (fig. 41). Most of them were originally placed into wooden coffins with face masks of unburnt clay, of which mostly mere remnants have been preserved. Some burials were placed on a board or mat and a number of them were just unprotected skeletons. Exceptionally there were found also skeletons of babies in big storage vessels of clay. The skeletons were mostly in a stretched position with heads turned towards the west and legs to the east, in some cases to the north and south respectively. The relatively modest equipment of the deceased rarely contained necklaces of beads and seashells, simple bracelets, ear-rings and rings, amulets-pendants representing gods (e.g. Bes) and symbols (e.g. sacred eyes) and exceptionally also pottery. A great number of burials did not contain any burial equipment at all.

Nine burials differed from the others, especially two of them that were found in the mudbrick twin-mastaba situated south-west of the Mastaba of Ptahshepses, outside the brick enclosure wall. The burials were placed in a rectangular limestone sacrophagus and in a disturbed oblong wooden coffin, both of which were oriented in the northsouth axis. The Mastaba and the funerals deposited in it can be dated to the end of the First Intermediary Period or to the beginning of the Middle Kingdom.

Four more skeletons were also in the stretched position, but their legs were directed to the west and heads to the east. This rite was common in the Ptolemaic-Roman Period[18]).

The remaining three funerals were placed in the stretched or slightly bent positions on the right or left side, their heads pointing to the south or north. Their dating remains unceratin.

Funeral rites, remnants of coffines, pottery and other finds discovered in the other funerals suggest that they come from the Saitic Period or from the Dyn. XXVII—XXX. This cemetery joined evidently another one that was discovered in mastabas situated south of the Mastaba of Ptahshepses[19]).

Similarity of most finds and of the recurrence of the characteristic potsherds of jugs of Bes suggest that the dating of most of the material from the disturbed funerals found in the Initial Mastaba coincides with that of the above mentioned funerals. Exact evidence of this supposition can be ascer-

[18]) H. SCHÄFER. op. cit. pp. 15 ff, 111 ff.

[19]) loc. cit.

tained by comparing anthropological material of both the areas on the one hand and by means of chemical or physical tests on the other. The dating of a few funerals from the area of the southern store-rooms is not yet clear.

The anthropological material uncovered in the funerals in the area outside the Mastaba contains remnants of approximately 111 individuals, more than one hundred of which were buried in the Saitic or Late Periods. Most of the bones are well-preserved and can be evaluated in the usual way.

The mixed-up material from the Initial Mastaba, however, does not make it possible in most cases to ascertain the identity of the individual skeletons to which the bones belong. This material is thus being evaluated according to the anatomical principle, i.e. all skulls, lower jaws, individual long bones of the limbs, sacral and pelvic bones, vertebrae, etc. are studied together. When determining sex of bones of adults, the variability of the reliably sexascertained material found outside the Mastaba will be taken into consideration and mathematic and statistic tests will be used to verify the results. Sex determination will be made easier by considering a less common measurement, namely the weight of long bones of the limbs[20]). The preliminary counting of the individuals buried in the old section of the Mastaba, based on the number of the discovered parts of skeletons, shows the total of roughly 150 persons. On the whole there were found remnants of about 275 persons, most of which belong to the cemetery from the Saitic or Later Periods.

The demographic composition of this material shows one interesting feature, namely, a considerably large number of remnants of children's bodies. In the material from the Initial Mastaba it represents about fifty per cent of the identified remnants and in the material discovered outside the Mastaba it is slightly lower. On the systematically surveyed cemetery at Wadi Kitna in Nubia dated 4th—5th cent. A.D. the number represented mere 39.2 per cent[21]).

The anthropological material from the secondary burials in the Mastaba of Ptahshepses shall be evaluated also from the point of view of morphology and genetics. This shall take up a longer period of time, however. At the moment we can state that as to morphology, the material is homogenous on the whole. It corresponds to the so-called Upper Egyptian type with a component of the Lower Egyptian one[22]). Alien features are rare, this being true also about the Negroid ones that occur sporadically only.

[20]) V. Ferák, Zur Frage der Feststellung des Geschlechtes der langen Gliedmassenknochen auf Grund ihres Gewichts. Acta F. R. N. Univ. Comen. IV 9.—10. Anthrop. Bratislava 1968, pp. 521—530.

[21]) E. Strouhal, A Remark on the Palaeodemography according to the Czechoslovak Research at Wadi Qitna. Actes du VII^{e} Congrès International des Sciences Préhistoriques et Protohistoriques, vol. 2 (Prague 1966), pp. 1272—1275.

[22]) Terminology according to A. M. Batrawi, The Racial History of Egypt and Nubia. II. The Racial Relationship of the Ancient and Modern Populations of Egypt and Nubia. Journal of the Royal Anthropological Institute 76 (London 1946), pp. 131—156.

After the evaluation has been completed it will be possible to compare the morphological features of the Abusir sample with those of the large series from the Dyn. XXVI—XXX cemetery at Giza[23]). This will enable us to find out whether the population is of the same or a different type. It will be also interesting to confront the features of the excavated population with those of the living inhabitants of Abusir who were surveyed in 1961[24]). The results might show that people buried in the Mastaba of Ptahshepses were inhabitants of an ancient village existing in the place of present Abusir.

Study of the frequency of paleopathological changes is inherent to the modern way of examining skeleton material. Preliminary research showed mainly traumatic changes, degenerative processes, inflammatory changes and tumours. Dentures were often afflicted with far-reaching paradontal changes.

As to the questions of death rate, which are part of paleopathology, it will be possible to consider also the analysis of deviations from the burying rites of burials from the Saitic and Late Periods, found outside the area of the Mastaba. The total of 69 burials were analysed in this way. The result showed that 34 of them were deposited in the west-east axis, deviating up to 11 degrees in both directions. 24 burials were placed in axes deviating from the west-east by more than 11 degrees, with heads pointing more to the north. Merely 11 burials showed the opposite deviation, with heads moved by more than 11 degrees to the south.

We assume that the deviations are not accidental, but that they correspond to the sunrise on the day of the burial. About a half of the burials were deposited in the season during which the sun rises in the east with the deviation up to ± 11 degrees, that is during spring and autumn. The discovered burials could be equally divided between these two periods (re 24.6 per cent). The burials with heads pointing more to the north were probably deposited at the time when the sunrise is moved towards the south, i.e. during winter (34.8 per cent). The funerals with heads pointing more to the south correspond to the sunrise moved towards the north and therefore were probably deposited during summer seasons (15.9 per cent). The time differences show clearly that in winter the number of funerals was more than two times higher than that in summer, while in the two remaining periods it was roughly between the winter maximum and summer minimum. This finding can be interpreted as a higher death rate in winter seasons. It might have been due to an increased number of diseases threatening life, mainly those of the respiratory system. A more detailed analysis of this discovery made with respect to the age structure of the deceased will be possible after the whole series has been examined.

Finally, we must point out that thanks to the Egyptian Antiquities Organization, the Egyptian

[23]) K. Peaqson, A. G. Davin, On the Biometric Constants of the Human Skull. Biometrika 16 (London 1924), pp. 328—363.

[24]) E. Strouhal, R. Reisenauer, A Contribution to the Anthropology of Recent Egyptian Population. 1. Anthropology of Abusir and Qift. Anthropologie 1/3 (Brno 1963), pp. 1—33.

Museum in Cairo and Ministry of Health of the Egyptian Arab Republic our expedition was granted a permision to transfer the anthropological material, together with osteological remnants of animals, to Prague. Thanks to the support of the director of Náprstek's Museum, Dr. V. Šolc, and in cooperation with the Paleontologic Department of the National Museum (Dr. J. Beneš) the laboratory analysis and further studies of the material could be started.

COFFINS OF SECONDARY BURIALS FROM THE SITE OF THE MASTABA OF PTAHSHEPSES

LADISLAV BAREŠ

During excavations in the Mastaba of Ptahshepses a relatively large number of secondary burials were found (about 275)[25]). 57 burials out of this number were placed in coffins[26]), one coffin was found empty. All preserved burials in coffins were found outside the Mastaba i.e. in the space between the Mastaba and its enclosure wall or outside this wall. A large number of those burials were discovered in the northern and southern parts of the excavated area, where both sides of the wall were excavated to a considerable depth. Not a single complete coffin was found in the Mastaba itself; only in excavation areas E and F a big number of remnants of wooden coffins, partly with plaster, were found to be destroyed by secondary manipulation.

The coffins were often placed close to the mud-brick enclosure wall of the Mastaba of Ptahshepses or even in pits dug in this wall (fig. 42). Many pits were discovered in the northern and southern parts of the wall. The burials in pits dug in the wall were probably to better protect both the body and coffin from destruction. Perhaps for the same reason many burials were inserted in the mud-brick pavement situated between the southwest corner of the Mastaba of Tepemankh and the southwest corner of the mud-brick enclosure wall of the Mastaba of Ptahshepses. This pavement can be dated back to the First Intermediate Period because under it there was discovered a dark clay layer containing Old Kingdom potsherds.

Different attempts to protect the burial were discovered. In one case the top of a coffin was inserted between two architectonic fragments which formed a sort of a roof (a limestone concave cornice coming probably from the Mortuary Temple of Nyuserre and a fragment of a red granite obelisk, the origin of which is disputable).

All coffins were damaged. The nearly destroyed coffins surprisingly differ from the well preserved Greek wooden coffins found in the close vicinity by the German expedition about 70 years ago[27]). Firstly, the burials at the Mastaba of Ptahshepses, especially those to north of it, lie much lower

[25]) H. Schäfer, op. cit. ; L. Borchardt, Nefer-'ir-ke3-re', p. 72 ff.

[26]) Concerning the distribution of coffins in the area of the Mastaba of Ptahshepses see fig. 42.

[27]) C. Watzinger, Griechische Holzsarkofage aus der Zeit Alexanders des Grossen. Leipzig 1906.

than burials found by Borchardt. Moreover it is possible to assume that the Greek coffins mentioned above are younger than the majority of coffins we have discovered.

The heads of almost all coffins (i.e. 52 out of 56) were oriented to the west, two to the south, one to the east and one to the north. The orientation is scarcely quite exact, especially in the case of the coffins with their heads oriented to the west it ranges from the southwest to the northwest.

All coffins with one exception were wooden, only one coffin was made of clay with a yellow painted mask on its lid. Wooden coffins can be divided into several groups.

The simplest are plain coffins without decoration, sometimes only boxes made of rough planks. To another type belong coffins covered on the whole surface with a layer of yellowish plaster. On the lid of those coffins there is usually a clay mask and at its sides there are often two small planks imitating a wig. Sometimes the coffins were red-brown, yellow-grey, pink-white and black except for a pink face and neck. Details of the face, i.e. eyes, eyebrows and ears, were drawn black. Several coffins were covered by a layer of clay only[28]).

The polychromed coffins[29]) (fig. 43) have clay masks painted in pink with black eyes, white eye-whites and black eyebrows and ears. On the chest they are decorated with stripes of ornaments, a winged sundisk or the collar *wesekh*. The ornaments used in decoration are either geometrical (squares, oblongs and triangles in various colours) or more or less stylized plant motives (rosettes or opening lotus flowers). Sometimes, there even appear funeral deities, a recumbent jackal Anubis or four sons of Horus.

Some types of coffins probably belong to different stages of production of painted coffins: the coffins covered with a layer of clay, the coffins covered with a layer of clay and white plaster, polychromed coffins etc. Colours used for painting were black, white blue, red, pink, yellow and brown.

The funeral *ḥtp dỉ nśwt* formula was inscribed on the lids of several coffins. It was mostly one line, written in black on a yellow ground. The end of almost all formulas is damaged and it is impossible to say whether they contained the name of the deceased or not.

Since no trace of a beard was found on the coffins, we have to assume that either all these coffins contained only women, which is improbable, or that the burials were too poor to distinguish between a man and a woman. There were also discovered three double coffins.

As to the shape of the coffins, it is possible to divide them approximately into three groups:

A. rough rectangular coffins (only three of them were discovered, two containing a child burial).
B. flat coffins in the shape of irregular hexagon, which are larger in the section from the head to the

[28]) E.g. coffin no. I 415 k.
[29]) E.g. coffin no. I 418 k.

chest and become narrower from the chest to the legs[30]). This group is the most numerous, it includes about one-half of all coffins.

C. roughly anthropoid coffins with rounded heads and marked shoulders.

The shape of the coffins has no influence on their decoration and vice versa. Neither shape nor decoration is connected with the location of coffins in the area of the cemetery.

In conclusion a few words about dating the coffins should be said. The cemetery in the area of the Mastaba of Ptahshepses dates back mostly to the period from the end of Dyn. XXVI. to the Roman Period. The majority of coffins come most probably from the first half of this period, i.e. from the 6th—4th centuries B.C. This corresponds with decorations and texts on the painted coffins and preserved burial equipment. Some coffins are apparently from a later, probably the Roman, period.

[30]) Concerning similar coffins see W. M. Flinders PETRIE, Illahun, Kahun and Gurob. 1889—1890 (London 1891), p. 28; J. E. QUIBELL, A. G. K. HAYTER, Teti Pyramid, north side. (Le Caire 1927), p. 4.

POTTERY FROM THE SITE OF THE MASTABA OF PTAHSHEPSES

PETR CHARVÁT

0.1. The pottery found during Czechoslovak excavations in the Mastaba of Ptahshepses at Abusir (fig. 44) is strikingly heterogenous. This is doubtlessly caused by the fact that the intervals between the periods during which the Mastaba was used are sometimes several centuries long. It is impossible to expect any continuity of the development of pottery on the site with monuments dating from the end of the Old Kingdom, the New Kingdom, the Late Period and even from the Graeco-Roman and Romano-Coptic Periods. Therefore each group of pottery must be considered and analyzed as an independent unit.

0.2. Another obstacle is extensive secondary devastation of the Mastaba, which essentially limits possibilites of using stratigraphic data. It is possible, however, to draw certain conclusions from reconstructed sections of the excavation periods 1961—1970 and especially from sections made during the last excavation period of 1974.

1.1. The oldest pottery comes from the period of construction and the first use of the Mastaba during Dyn. V. The pottery of this period is represented for the most part by miniatures. They are the most numerous type of pottery found in the Mastaba of Ptahshepses; they number several thousand. We have distinguished two types of miniature bowls (with concave and convex walls — see fig. 45, No. 1—2) and three types of miniature vessels (chalices, biconical chalices and rimmed biconical chalices — see fig. 45, No. 3, 4 and 5). Their stratigraphic location was as follows:

1.2.

Area D — in the 3rd (the lowest) layer (the original location?)
— in the third (the lowest) group of finds behind the outer wall of the Mastaba (refuse from storerooms?)

Area E — contained only one find (F 328) in a secondary location

Area G — there were three miniatures in the fourth (the lowest) layer in the original(?) location

Outside the Mastaba — the biggest concentration was observed along the western wall (along its southern half and in the southwest corner of the Mastaba). Large deposits of miniatures (one of them containing 926 bowls and 181 vessels) were found in brick destruction apparently from the Old Kingdom).

1.3. Production technology of the miniatures shows some very remarkable features. Regular circular grooves prove that miniatures were made on the potter's wheel. Besides, on the underneath side there usually appear traces of a string with which the finished vessel was cut off from the base in order not to be damaged by hand manipulation when it was still soft. In many cases the bottom of the vessel is not flat but irregular in various ways. From this it follows that the vessel was not cut off with a string from the flat top of the potter's wheel but probably cut off from a cone of clay placed on the wheel. The vessel was made from the top of this cone and immediately after cutting it off another vessel could be made from the cone. Iconographic proofs of this procedure were found as late as Dyn. XII in Beni Hassan tombs[31]). It is possible that this method is also depicted in a wooden model of the potter's workshop coming from Dyn. IX[32]), which means that it could be known and used by potters in the Old Kingdom.

1.4. The use of these miniatures has not yet been clarified. The most frequent explanation is that they were used in regular (daily?) offerings to the deceased but no decisive proof has been presented so far. Miniatures appear in large quantities around important buildings of the Old Kingdom. De Morgan found them at Dahshur on large pottery trays. It is possible that they fused with the pottery trays carrying miniature bowls made from clay of these trays which are thus firmly connected with the trays, and the so-called "soul-houses" of the First Intermediate Period (?).

1.5. The pottery miniatures of our types can be dated according to all analogies to Dyn. IV—V.

2.1. Among various types of medium sized vessels (the term was chosen as to the position of these vessels among miniatures and storage jars) we count large and flat dishes, bowls of various depth with a recurved rim (see fig. 45, no. 6) and "bread forms" (massive conic vessels with roughly shaped bottoms — see fig. 45, no. 8). The existence of higher vessels is indicated, apart from various potsherds, by a discovery of a false spout (I 429) which is high and narrow. There were also found several fragments of bowls with parts of their rims pressed inside in lobe-like manner, among which parts of the original rim are preserved as spouts (three pieces in all — see fig. 45, no. 9).

2.2. Stratigraphic data:

Area D — the third (the lowest) layer contained medium sized vessels together with miniatures (original location?)

Area E — a deposit of this pottery was found in a pit in room no. XXVIII. One "bread-form" (F 313) was found in the upper layer of the filling of the burial shaft

[31]) P. Newberry, Beni Hassan. I (London 1893), pl. XI, 4; F. Ll. Griffith, Beni Hassan. IV (London 1900), pl. XX.

[32]) M. Mogensen, La Glypthotèque Ny Carlsberg. La Collection Égyptienne. (Copenhague 1930), pl. LXVI, A 518.

Area H — in the third layer, together with the pottery of the Late Period(?) and in the second layer covering the third

Outside the Mastaba — in the layer 2 b along the outer eastern wall together with glass fragments from the Roman Period; along the western half of the southern outer wall this pottery together with fragments of storage jars and bases formed an enclosure wall of the Mastaba (and separated from the top of the collapsed wall by a thin layer of sand) and damaged by burials of the Late Period(?). With regard to the fact that the layer did not contain pottery later than from the end of the Old Kingdom, it apparently comes from this period. The pottery of this type also formed the contents of both layers found in a small brick building, the wall of which was discovered between the northeast corner of the Mastaba of Tepemankh and the northwest corner of the Mastaba of the Princesses.

2.3. Production technology of the medium sized vessels is shown in a number of reliefs and statuettes from the Old Kingdom. We can see kneading of the ceramic paste with feet, building of the vessel on a slowly turning potter's wheel (which is rather a tournette), turned by the potter himself and consisting of an axle with a circular plate fixed on it. Finished vessels were burnished (which is apparent from irregularly located traces on a number of potsherds, thus confirming the activities depicted in the reliefs), dried and fired in furnaces. Frequently occurring spouts were made by hand and inserted into the still soft walls of the vessels. Some potsherds of the Mastaba of Ptahshepses bear cord impressions; in a closer analysis they proved chronologically unreliable and thus not suitable for dating. The first cord impressions appear on Egyptian pottery as early as Dyn. I[33]) and for the last time in Dyn. XXII[34]). It seems that we encounter here traces of a certain method of production of vessels; modern Egyptian potters are said to wind a cord two or three times around the largest part of the vessel before taking the vessel down from the potter's wheel in order to protect it from falling apart[35]).

2.3.1. It is necessary to point out the frequent occurrence of red washes and slips on the surface of medium sized vessels. If they are deeper bowls their whole surface is covered with washes and slips. Shallow dishes are usually varnished only inside and sometimes the wash or slip overlaps to the outside and forms a strip under the rim. In one case (s.n. 2, 27. 2. 1974) the strip of red wash was put on the lower part of a recurved rim while the upper part directly under the mouth of the vessel remained without paint. It is possible that in this case the wash served rather for a decorative purpose and that we encounter here the first tendencies to a renewal of painted decoration of pottery.

[33]) W. M. Flinders Petrie, Abydos. I (London 1902), pl. XL, 20.
[34]) W. M. Flinders Petrie, Qurneh (London 1909), p. 15.
[35]) H. Junker, Giza. I (Wien—Leipzig 1929), p. 111.

2.3.2. As to the burning of vessels, it is necessary to note the frequent occurrence of a black core in the profile of potsherds. According to pottery observations this appears when the vessel is burned in oxidation atmosphere (with the incoming of air) and under low temperature, which indicates a lower level of pottery production[36]). The black core means unoxidated carbon.

2.3.3. Important conclusions about production and distribution problems of Egyptian pottery can be drawn from the studies of potters' marks. Among large quantities of pottery from the Mastaba of Ptahshepses there are only seven marked pieces. Four of these pieces (F 144/194, G 166, H 328 and H 381 — see fig. 45, no. 10) are marked with the picture of a bird. Two marks out of the remaining three have been preserved in such fragments that it is not clear what they represented, one could be interpreted as a stylized *serekh*. Two out of four pieces marked with the picture of a bird are "bread forms" and two are fragments of deep bowls. Thus we can obtain a survey of pottery types produced by one potter.

2.4. Medium sized bowls are marked by a striking multiplicity of functions. Only "bread forms" have a special use; statuettes and reliefs of the Old Kingdom prove that they were really used for baking bread (after being heated on the fire). Reliefs show a clearly multiple use of dishes with recurved rims, which were used as food dishes but also as flower pots and even for catching the blood of slaughtered cattle[37]). Very instructive is the discovery of a bowl of this type in the tomb of Rahotep at Medum[38]). It was found at the bottom of a shaft and contained plaster for sealing the tomb.

2.5. Pottery of this type in the Mastaba of Ptashepses can be generally dated to Dyn. V, although some pieces are probably from a later period ("bread form" D 19). The cult was preserved even in the Mortuary Temple of Nyuserre where clay sealing of vessels from the time of Unas was found[39]).

3.1. The third type of pottery vessels from the Old Kingdom common in the Mastaba of Ptahshepses are jars. Their appearance is rather uniform — high (as much as 70 cm) and slim body tapering slowly into a pointed bottom (see fig. 46, no. 11). The neck is variously developed from pieces with their neck only indicated to regular cylindrical shape. The rim is simple or strenghtened with a triangular or oval profile. Pottery stands, in which vessels with pointed bottoms were put on a flat surface have also a very uniform biconic appearance (the shape of the "hourglass" — see fig. 46, no. 12). There was found only one stand with a more developed lower part in the tradition of stylish high stands from the tombs of Giza.

3.2. Stratigraphic data:

Area C — occurred in the first (surface) layer, the latest pottery — Romano-Coptic (C 371 — a storage jar)

[36]) T. Dabbach, Ceramics in Archeology. Bulletin of the Coll. of Arts (Baghdad Febr. 1960), p. 9.

[37]) H. Balcz, Die Gefässdarstellungen des Alten Peiches. Mdaik IV (1933), p. 18 ff.

[38]) W. M. Flinders Petrie, Medum, (London 1892) p. 35, pl. XXXI, 21.

[39]) L. Borchardt, Ne-user-re^{c}, p. 138.

Area D — in the surface layer in the entrance corridor the layer with these vessels covered the lower layer containing a hieratic ostracon from the New Kingdom. Does this indicate a reutilization of storage jars in the New Kingdom?

Area E — contained a non-stratified find of the bottom of a storage jar filled with plaster

Area H — storage jars and stands were found in the third and second layer, which cover the fifth and the fourth layer of this room. The fifth layer can be dated according to the occurrence of faience pot sherds to the New Kingdom and consequently the third and the second layer must be later. Is this another proof of a reutilization of big storage jars of the Old Kingdom?

Outside the Mastaba — in the third layer along the eastern outer wall. The terminus ante quem for the layer is the Late Period (the tombs from the Late Period were dug into it). They also occurred in the already mentioned layer along the western half of the outer southern wall from the end of the Old Kingdom where they are together with medium sized vessels.

3.3. As to the production technology of storage jars, the reliefs inform us that they were not made on the potter's wheel but on special stands. Their building by hand can be proved by rather rough surface finishing and sometime clear fingerprints. It is possible that hand making of storage jars is pictured by some statuettes of potters with one of their hands inside the pot and the other one on its surface. This, however, might also be only surface burnishing of the vessel and not its forming. In several cases it seems that the neck was made (or only centered?) on the potter's wheel. Strong admixture of organic material can (but also need not) indicate tempering: it is necessary to take into consideration the fact that the clay used for these vessels was obtained in any suitable place and that it could be soiled by organic admixtures even in its raw state. The stands bear shallow regular horizontal grooves and traces of the centering on the wheel, which was necessary for good stability of the stand. Inside, in the narrowest part, which usually could not be polished, we can perceive characteristic waving, which seems to indicate that the stands were first of all built from a long clay coil, wound into a spiral and pressed together ("Wulstgefässe").

3.4. As the term indicates, storage jars were first of all used for storing liquid or powdery substances. Fragments of such vessels could also be used for carrying various liquid materials (e.g. mortar — our E 2629). For this we can quote finds from the burial shaft of Queen Hetepheres: mortar brought in similar fragments of storage jars was poured over blocks of filling.

3.5. Storage jars and stands found in the Mastaba of Ptahshepses can be generally dated to Dyn. V to VI.

4.1. Beside pottery vessels, a number of stone vessels were found in the Mastaba of Ptahshepses. They were mostly made of limestone and alabaster, less often of basalt, slate materials and diorite. From the morphological viewpoint the vessels can be divided into the following groups: libation basins,

bowl-type vessels (their height being much less than the diameter) among which we can count the "bowl" for seven sacred oils (see fig. 46, no. 13) and which comprise small bowls and stylish alabaster and diorite dishes, pots (with the height approximately equal to the diameter) and high jars. We can add to this three stone stoppers and two lids.

4.2. Stratigraphic data:

Area A — from the third (the lowest) layer, the "bowl" for seven sacred oils (1019/A 516); in Giza, however, these vessels were placed in the burial chamber which means that this location could be secondary

Area C — in the first (surface) layer with the latest Romano-Coptic pottery (a libation basin, bottle C 947, which may have been originally placed in the burial chamber — see fig. 46, no. 14)

Area D — in the first (surface) layer covering the layer with pottery from the New Kingdom

Area E — fragments of stone vessels are numerous here: alabaster lids come from the burial chamber (see fig. 47, no. 18). Alabaster miniatures from all three layers of other areas (from below: The New Kingdom, the Coptic Period, the Coptic Period), diorite fragments, libation basins (see fig. 47, no. 17)

Area F — in both layers (the lower — the Late Period?, the upper — the Coptic Period) there were found a libation basin, a diorite fragment

Area G — from the fourth (the lowest) layer and the third layer (before the New Kingdom, the New Kingdom) — untypical fragments. In the second layer (the Greek Period) there was found a diorite fragment.

Area H — the fifth (the lowest) layer contained diorite and alabaster fragments (the New Kingdom); the fourth layer contained rough hewn limestone bowls(?), semi-finished pieces, broken pieces, which are probably remnants of a stone-cutting workshop from the New Kingdom(?). The third layer (the end of the New Kingdom, the Late Period) contained libation basins and a diorite fragment, the second layer (Coptic) fragments of limestone bowls.

Outside the Mastaba — the third (the lowest) layer along the outer eastern wall contained cylindrical vessel J 1643 (see fig. 47, no. 16) which probably belongs to the equipment of the burial chamber. The terminus ante quem for the layer is the Late Period. Layers 2b and 2a (Ptolemaic) contained diorite fragments, and a fragment of a libation basin. The first (Coptic) layer contained a diorite fragment. Along the northern wall in the third layer (Roman) and the second and first layer (Romano-Coptic) there were found fragments of rough technical bowls, among them a bowl with a compartment for red and black paint (J 373).

Along the western wall the upper layer (the New Kingdom) yielded fragments of stone bowls (see fig. 47, no. 20). Along the southern wall: a fragment of a simple limestone bowl

was found in the pottery layer from the end of the Old Kingdom (see above); two fragments of diorite bowls were found in the upper (Roman) layer. These could have been taken there in the Roman Period when the stone from the Mastaba was quarried.

4.3. Production technology of stone vessels is well-known[40] and our pieces show how the stone block was first of all roughly hewn into the future shape then hollowed out on one side and at last its surface finished into a bowl. The bowls were made beginning with the rim towards the centre This can be seen on pieces such as D 266, which has a finished rim but which was split during the elaboration of the centre, or E 3685, a diorite bowl with a finished rim and a still rough piece of stone block in its central part (see fig. 47, no. 19). Drilling was used in production of higher vessels (our piece J 1643).

4.4. When discussing the use of stone vessels it is necessary to note first of all the miniatures; small bowls (E 1719, E 1786 and probably H 353), collared bottle C 947 and cylindrical vessel J 1643 were probably placed originally in the burial chamber (analogically e.g. Reisner, Giza 2, 91 ff). The location of the "bowl" for seven sacred oils in the mortuary chapel seems problematic; we have already said that these objects were found in burial chambers of these tombs in Giza. Diorite and alabaster bowls, the fragments of which were found in the Mastaba served probably for the mortuary cult and so did the libation basins. The occurrence of alabaster lids of vessels in the burial chamber makes us guess — very cautiously, of course because incidental occurrence cannot be excluded — at the original location of higher vessels. It seems that after the opening of the burial chamber its contents were thrown about the Mastaba and mostly destroyed and therefore nowadays we can find only scanty remnants of the original burial equipment. Another group of stone vessels probably served for various technical purposes during the decoration of the Mastaba. Several simple bowls bear traces of paints (grey, black, or in the case of J 373 two separated basins for black and red paint in one bowl). Grey paint, which was the content of bowl 667, according to Professor Žába is identical with the colour of the background on the reliefs.

4.5. Stone vessels from the Mastaba of Ptashepses can be generally dated to Dyn. IV—VI.

5.1. It is necessary to mention five simple conic bowls made of copper and found under Ptashepses' sarcophagus. They can be dated in Dyn. V.

6.1. Find no. 424, unfortunately a surface find (see fig. 47, no. 21), is a fragment of a black and white incrusted jug of the so-called "Tel El Yehudiya ware", decorated with irregularly placed lines of white incrusted dots, running diagonally upward. Cylindrical jugs of this type can be found in the locality of Tell Ed-Dab'a in the eastern Delta starting with the layer D 3/E 1 i.e. approximately the middle of the Hyksos settlement of that locality, during the second half of the Second Intermediate Period[41]).

[40]) D. Dunham, The Egyptian Department and its Excavations, Boston, Museum of Fine Arts, (1958), p. 52.

[41]) M. Bietak, Vorläufiger Bericht über die dritte Kampagne der österreichischen Ausgrabungen auf Tell ed-Dabᶜa im Ostdelta Ägyptens (1968), Mdaik 26 (1970), pp. 30 and 40.

7.1. A number of finds, especially of decorated pottery belong to the period of the New Kingdom. Among the rich ornaments of pottery and faience vessels the majority are the ornament of lotus flowers and a simplified model of lotus petals. With regard to the fragmentary preservation of the vessels we can quote only very few morphological data: stand E 2246 (see fig. 48, no. 24), covered on its narrowest place with two plastic ribs and fragments of amphorae with slim bodies and slightly convex walls of their necks (J 1832, 11948 = see fig. 47, no. 22), indicating the second half of Dyn. XX. Find E 765, a fragment of a jar, may belong to the New Kingdom according to spiral traces formed by its turning on the inner side of the bottom, which Petrie[42]) considers as a typical feature of the New Kingdom. Our fragment of jug E 206 carries similar traces and so we can also think about dating it to the New Kingdom.

7.2. Stratigraphic data:

Area A — in the second layer (the terminus ante quem the Saitic Period?) and from the first layer (Coptic)

Area D — from the second layer (the New Kingdom) and behind the outer wall of the Mastaba

Area E — in all three layers (from below upwards: the New Kingdom, the Coptic Period, the Coptic Period)

Area F — in the lower layer (the Late Period?) and from the upper layer (the Coptic Period)

Area G — in the first (upper) layer above the second layer, which contained a potsherd from the Greek Period

Area H — finds were placed in the fifth (the lowest) layer (the New Kingdom) and in the second layer (Coptic)

Outside the Mastaba — finds were placed in Roman and Coptic layers. Unstratified finds were placed along the southern wall, in pre-Saitic, Ptolemaic(?) and Coptic layers, along the eastern wall and in a damaged layer along the western wall.

7.3. The pottery of the New Kingdom — or at least its part — seems to have been made on the wheel turned by the potter's helper so that both hands of the potter could be free for work. This can be proved by spiral traces on the inner side of bottoms of some vessels mentioned before. It is possible to assume that some of our finds were slightly tempered with organic materials or sand. Vessels were apparently painted after being burned. Information concerning production technology of faience vessels can be found in Lucas' Materials[43]).

7.4. While the painted vessels were used in the New Kingdom mostly for secular purposes (at banquets)[44]), faience bowls, forming the majority of faience vessels from the Mastaba of Ptahshepses,

[42]) W. M. Flinders Petrié, Kahun, Gurob, and Hawara, (London 1890), p. 33.
[43]) A. Lucas, Ancient Egyptian Materials and Industries[4] (London 1962), 156—167.
[44]) W. Wreszinski, Atlas zur ägyptischen Kulturgeschichte. I (Leipzig 1923), taf. 90b.

were found not only in private tombs (e.g. at Der El-Medina[45])) but also in sanctuaries (Der El-Bahari[46])). With regard to the fact that burials from the New Kingdom are missing in the Mastaba it is necessary to take into consideration the idea that the Mastaba of Ptashepses could have been used during the New Kingdom as a religious centre. This is suggested by a graffito from the period of Ramesse II, published by Spiegelberg[47]) and more recently also by Baines[48]), which comes from the Mastaba of Ptahshepses and depicts the cult of Sakhmet (in the near Mortuary Temple of Sahure) and Ptah.

7.5. Our painted pottery and faience can be dated from the reign of Amenhotep III (No. K. 1645 = = see fig. 47, no. 23 — has an analogy from his period) to Sethi I (J 1469, see fig. 48, no. 25, a faience sherd with his cartouche) or to the period of Ramesside Dynasty (E 904 e — see fig. 48, no. 26 — a painted potsherd with remnants of sign *mś*?). It seems, however, that some finds (e.g. the amphorae mentioned above) fall out of this limit and come from the second half of Dyn. XX.

7a.1. It is necessary to mention the fact that finds E 936 (see fig. 48, no. 30) and probably also E 717 with their black-white-red painting of straight and wavy lines and whitish pottery material differ from Egyptian pottery; it is possible that they are Aegean sherds of the protogeometrical style.

8.1. Remarkable in all aspects, although less numerous, is the pottery of the Saitic Period.

We found, first of all, small bag-shaped bottles from burials, one of which has a plastic knob under its mouth (see fig. 48, no. 31 — I 378 k). We have to mention especially a very stylish bag-shaped bottle I 405 (see fig. 49, no. 32) with geometrical motives (chessboard, straight lines) painted dark — brown on a light brown background. We can also mention a group of Bes' jugs (e.g. see fig. 49, no. 36) with cylindrical necks and egg-shaped or cylindrical bodies bearing the picture of the face of the god Bes and two big bag-shaped storage jars with pairs of massive handles under the rims, used as containers for buried bodies of children (J 394, I 374/1 — see fig. 49, no. 33). Besides, it is possible to date find E 1129 (see fig. 49, no. 34) with plastic plant ornament to the Late Period, since we can find out an analogical case in Dyn. XXII—XXV from Palestine[49]). To the Late Period we can also date two potsherds with a light green slip, analogies of which are known from Qurnah: I 450 (see fig. 49, no. 35) with a fragment of a hieroglyphic inscription and an unnumbered sherd with incised lines and cuts.

8.2. Stratigraphic data:

Area A — occurred in burials (Bes' jugs) and in the second (middle) layer (terminus ante quem the Saitic Period?) '

[45]) B. Bruyère, Rapport sur les fouilles de Deir el-Médineh 1926, (Le Caire 1927), p. 46, fig. 31d.

[46]) E. Naville, Deir el-Bahari. III (London 1913), pls. XXVI, XXVII, XXXII and pp. 18 and 28ff.

[47]) W. Spiegelberg, Die hieratischen Graffiti der Mastaba des Ptahshepses zu Abusir. Rec. Trav. 26 (1904).

[48]) J. Baines, The Destruction of the Pyramid Temple of Sahure. Göttinger Miszellen 4 (1973), p. 12.

[49]) J. Duncan, Corpus of Dated Palestinian Pottery (London 1930), decor. fragm. 7, H 25.

Area E — in the second (middle) layer and in the first (upper) layer — both Coptic, there was found an unnumbered sherd with grooves and strokes marked "from the burial shaft".

Area F — from the second (the lower) layer (the Late Period) outside the Mastaba — non-stratified finds occurred above the western half of the southern outer wall of the Mastaba (I 450, I 438 — a Bes' jug). The storage jar with a child burial J 394 was lying in the sand without apparent stratification, storage jar I 374/1 was inserted in the damaged top of the enclosure brick wall of the Mastaba coming from the Old Kingdom.

It is necessary to note the fragment of a globular faience vessel I 370/1 (see fig. 49, no. 37), belonging to the type of faience vessels called by von Bissing "Kugelaryballoi". It was found in the sand above brick destructions apparently from the Old Kingdom along western outer wall of the Mastaba.

8.3. While bottle I 387 k is rather massive and possibly still made by hand, the first-class piece I 405 and Bes' jugs were most probably made on a quickly turning wheel. This can be seen in large and shallow grooves on the inner and outer surface of these vessels. The face of the god Bes consists of pieces of clay formed into the shape of eyes, nose and mouth (and also prominent eyebrows). It was stuck on a still soft wall of the vessel (which is sometimes slightly pushed inside by the pressure). Details are incised, stamped (the eyes, the circles between the eyebrows, possibly with the end of a little hollow tube) or made with a tool with a sharp edge (the hands). Only in one case tempering with sand could be observed (I 450).

8.4. Large storage jars and Bes' jugs, common in both funeral and domestic pottery, were apparently used as utility vessels. On the other hand, painted bottle I 405 and "Kugelaryballos" I 370/1 may have been used as containers for cosmetic preparations.

8.5. The dating: bottle I 405, decorated in the manner of the so-called New Year bottles of the Saitic Period, has exact shape analogies — even in the shape of a tubular lug — in late Corinth vases "in the oriental style" from the beginning of the 6th century B.C.[50]) If we assume the priority of the Egyptian shape and thus date our find a little earlier than the Greek pottery mentioned above, we can fix its date generally at about 600 B.C.

Bes' jug, which appeared in the New Kingdom (the oldest piece can be dated more exactly to the period of Amenhotep III) and was probably inspired by vessels bearing a bizarre portrait of a Syrian captive[51]), became a typical pottery product of the Late Period, especially from the Saitic Period to which belongs the majority of the finds from the Mastaba of Ptashepses. The Bes' jug was preserved to the Graeco-Roman Period and the latest pieces were found in Coptic settlements.

[50]) N. Borisovskaya, Mastera i stilisticheskiye grupy pozdnekorinfskich ... vaz, Trudy gosud. Ermitaža XIII (1972), p. 8.

[51]) The oldest depiction of the Bes' jug may be found in R. Lepsius, Denkmäler aus Ägypten und Äthiopien, III. no. 127 (from the Temple of Sethi I in Karnak).

Storage jars with a pair of strap handles, used for burial purposes, are known from more sites (e.g. Mitrahina)[52]) and dated usually to the Saitic and less to the Graeco-Roman Period.

"Kugelaryballoi" made of faience and analogical to our I 370/1, are dated by von Bissing to the 6th century B.C.

9.1. It seems that following the end of the Saitic Period the Mastaba was also used during the Ptolemaic Period. It is necessary to mention the neck of a miniature vessel with marked strap handles pointed upwards (693 d — see fig. 50, no. 38) from the Roman Period and then find G 137 (see fig. 50, no. 39) from the second layer of Area G (the latests find of the layer), made of fine yellow-pink pottery material with black painting remainding the Greek red-figure pottery. It is also necessary to mention a number of big handles made of yellowish sand-tempered material, which were found in the Mastaba and belonged originally to big storage jars with a pair of handles of the Hellenic Period. This activity is also proved by a coin found in layer 2a at the eastern outer wall of the Mastaba and coming from the Ptolemaic Period.

10.1. We have to mention here, too several finds which can be generally dated to the Graeco-Roman Period: knob-like bottoms of rounded storage jars, a ceramic handle from area E and a three-lobed mouth of a jug with the handle and a part of the neck, found in the upper layers of the burial shaft (see fig. 50, no. 40).

11.1. Finally, it is also necessary to deal with the Romano-Coptic Period. Among pottery shapes we meet dishes with rims going vertically up, with a plastic rib under the rim on the outer surface, a spherical body and a very low pedestal ("Ringfuss"), sometimes decorated with rows of vertical strokes between the rim and the plastic rib (see e.g. fig. 50, no. 41). Medium sized vessels are represented by biconical handleless shapes with an intricately profiled rim (e.g. fig. 50, no. 42) and fragments of vessels of another type, with the rim of the triangular section slightly bent out and grooved under the rim. The biconical vessels may be painted with geometrical motives. Another type are the big amphorae, of which only parts of the neck or typical potsherds with sharp edges, dividing the vessel horizontally, have been preserved (see fig. 51, no. 46). It is necessary to mention find I 372 (see fig. 50, no. 43) with a profiled rim, decorated by vertical strokes and made of very hard yellowish clay, which most probably belongs to the so-called-eastern sigillata or late Roman ware A—C. Find J 1410 is a potsherd decorated with a stamped medallion with a cross, probably a Coptic imitation of the eastern sigillata (see fig. 50, no. 44). Roman faience is represented by the lower part of a globular vessel with a low pedestal J 1762, decorated with geometrical motives (straight lines, triangles — see fig. 50, no. 45). Fragments of glass vessels are unfortunately too small to offer information concerning the shapes of glass vessels but it seems that we can distinguish a bowl, a conic cup and a chalice on a pedestal.

[52]) R. Anthes et al., Mit Rahineh 1955 (Philadelphia 1959), p. 21, fig. 2 and pl. 16 d, e.

11.2. Stratigraphic data:

Area C — a fragment of ribbed amphora G 909 comes from the first (upper) layer (Coptic)
Area D — yielded non-stratified finds
Area E — in the third (the lowest layer), E 2386, intrusive? (a layer from the New Kingdom?)
— in the second (Romano-Coptic) layer there was found a lid and a bowl
— in the first (Romano-Coptic) layer — E 400, a glass fragment
Area F — in the first (upper) layer (Romano-Coptic) a painted potsherd
Outside the Mastaba — along the northern wall: glass fragments in the third (the lowest) and the first (upper) layer — Roman, Romano-Coptic

Along the southern wall: I 394 (a fragment of an amphora with ribs) and I 409 (a fragment of a painted vessel) were above a pottery layer of the Old Kingdom, above burials from the Late Period and above both stone platforms found above the burials from the Late Period

I 434 and an unnumbered potsherd from stone platforms linked up with the wall of the Mastaba deeper than the two platforms mentioned above. Glass fragments immediately below the surface. Along the eastern wall: the third (the lowest) layer, the terminus ante quem of which is the Late Period, intrusive finds (a gragment of an amphora, a glass fragment)

in layer 2 c—b — glass fragments
in layer 2a — glass fragments, painted potsherds the faience piece J 1762
in the first layer — a grass fragment, a bowl, rims, a spout with a pottery strainer inside, painted potsherds, J 1410 with a stamped medallion

It is probable that even the finds of the Romano-Coptic Period of the layer 2c (the possible terminus ante quem the Late Period) can be intrusive, the finds in higher layers can be — with regard to large destructions — in their original location.

Along the western wall: I 372, a fragment of the eastern sigillata, non-stratified, above brick destructions of the Old Kingdom.

11.3. From the aspect of production technology Romano-Coptic pottery is clearly differentiated. First of all we have to mention a group of potsherds, which, although wheel-turned and painted, are made of rough and non-homogenous pottery material and have organic tempering. Another group — representing the majority of pottery finds from this period — is also wheel-turned, but the pottery material is already prepared more carefuly and is not tempered. Only in one case slight tempering with sand was found (I 434). The pottery material of find I 409 shows admixture of both sand and organic material; was it a sandy clay with organic tempering? The third group are Roman provincial products (mostly amphorae). It is characterized by white and even yellowish pottery material, strong

tempering with sand and clear traces left behind by the potter's wheel. Out of more important finds, the above mentioned fragment of eastern sigillata I 372 is made of a very hard buff material without apparent tempering, decorated with vertical strokes, probably wheel-impressed, and J 1410, an imitation of this type of pottery in local conditions, a whitish pottery material with a red slip and a stamped medallion with a cross.

11.4. All types of Romano-Coptic pottery from the Mastaba of Ptahshepses are found in the settlements of this period throughout Egypt; it is apparently common utility pottery.

11.5. As to the dating of this period, we can say that the plastic rib on the outer surface under the rim appears during the Roman Period, rows of strokes under the rim are typical for Coptic i.e. pre-Arab Period. Coptic imitations of eastern sigillata are dated to the 6th—7th century A.D., while ribs on big amphorae disappear in the 7th century (our amphorae are still with ribs). Painted pottery can be generally dated between the first and the seventh century A.D.; to be more exact we can only say that numbers E 400 and F 76 (see fig. 51, no. 47, 48) decorated with a bladder-like ornament (eliptic forms arranged in the shape of a zig-zag line between two parallels) are later that the 3rd century A.D.

12.1. In conclusion we have to mention that find J 1693 (see fig. 51, no. 49), decorated with straight and wavy lines, has a parallel in the Coptic material from the 11th century A.C.

THE PILLAR SYSTEM OF THE PILLAR COURT OF THE MASTABA OF PTAHSHEPSES AT ABUSIR

MIROSLAV KORECKÝ

The Czechoslovak architectural research on the site of the Mastaba of Ptahshepses continued in the excavations conducted by De Morgan at the end of the 19th century, yet it meant a new stage in the research and results reached. During the research we succeeded in discovering and reconstructing in the greater part the architectural conception of the Pillar Court of the Mastaba (fig. 52). A deep exposure of the court revealed wonderful reliefs on the pillars valuable with regard to the development of art.

De Morgan already knew roughly the ground plan and the number of the pillars of the Pillar Court[53]). He must also have known about the two architrave blocks that were later uncovered in the north part of the Pillar Court by the Czechoslovak research in 1960. In the same year several limestone blocks were discovered. Without any doubt these belonged to the court, too, but they were already damaged by erosion and deformed. The research then was not succesful in identifying their function and original place.

The blocks were identified only during the architectural research in 1961, from Oct. 14 onwards[54]). They were proved to be tops of several pillars which were once eroded and gradually broke off and fell (fig. 53). They became an invaluable clue to what the pillars looked like and especially to what their approximate height was. A once perfect prism in the upper part of the pillar was changed by eolithic erosion into an amorphous stump. Aeroxyst erosion had also deformed and flattened the tops of the pillars from the original 100,5 cm (the dimension of the side of the pillar) to 73 cm in the first identified piece. Another piece was even flattened to a mere 22 cm. However, it was possible to identify the pin pits for wooden pins on these broken-off pillar tops. The diameter of the pits (cca 9,5—10 cm) and the interaxial (52—53 cm, i.e. 1 cubit) corresponded to the given module. The pillar was connected with the lintel by means of a pin. The same module can be noticed in the above mentioned well preserved architrave blocks.

The limestone structure of the Pillar Court of the Mastaba of Ptahshepses was gradually clarified

[53]) J. de MORGAN, op. cit.

[54]) M. KORECKÝ, K pilířům a jejich reliéfům ▪ Abusíru 1961, Umění (ČSAV) XIII, Praha 1965 (The Pillars of Abusir and their Reliefs), p. 122.

even in 1961 — as to the technical aspect of the connection and completion of the elements and also the whole picture of the grandiose architectural conception of the court. The hypaethral centre of the court was surrounded by a roofed gallery. Its inner perimeter consisted of the pillars and the lintels of the architraves and the cornices belonging to the ceiling structure. Both the architraves and the pillars are monolithic blocks, entirely of limestone. The system of the architraves was peculiar to the Ancient Egyptian culture. With the exception of the four corner pillars their ground plan is square, with sides of 100,5 to 101 cm. The interaxial is about 242 cm, the intercolumniation about 142 cm.

Compared to similar structures of the same period and type such as the slightly earlier Mastaba of Ptahhotep, and slightly later Mastaba of Ti at Saqqara, the Pillar Court of the Mastaba of Ptahshepses is much more grandiose and extensive. Whereas in the Mastaba of Ptahhotep we find only four peripheral pillars, and in that of Ti twelve, the Court of the Mastaba of Ptahshepses has twenty pillars. Something for which we find no analogy in any other examples of the similar structures of that period (fig. 54). As to form, the pillar had not changed since its origins at the beginning of Dyn. IV (the court of Snefru's Lower Temple of the Bent Pyramid at Dashur, discovered by A. Fakhry in 1952[55]) up to the second half of Dyn. V. Only the ground plan changed from the original oblong into a square. Its function as a space-forming element did undergo changes, though. From the pillars of the elevation of Snefru's Lower Temple at Dashur (reconstructed by H. Ricke) the pillar gradually developed into an important element of the colonnade surrounding the transverse courts. Examples can be found in the Mortuary Temples at Giza, in the temple of Userkaf at Saqqara dating from the beginning of Dyn. V, and especially in the Lower Temple of the Sun Temple at Abusir[56]).

Another developmental change occurred which must be taken into account. Since the time of King Sahure pillars were substituted in large temple courts by the first perfectly shaped columns. Perhaps that is why the court is prolonged and deepened instead of being transverse. The development of the pillar continues simultaneously with the column only in the non-royal structures, in Mastabas. In view of this fact the Pillar Court of the Mastaba of Ptahshepses (one of the largest of the Old Kingdom) deserves special attention. The almost exact square of the court with the diameter between the pillars of 11,16 m by 11,36 m has no analogy as to its geometric form and extent in the non-royal structures of the period. The inner area between the pillars is near that of Userkaf's Lower Sun-Temple at Abusir. Contrary to Userkaf's court it is not possible to find here any apparent module system based on the Ancient Egyptian cubit. The main square itself has dimensions of something less than 22 cubits by 22 cubits. There is no evident rhythm of numbers in cubits whereas the inner width of Userkaf's court is 32 cubits. This may have been caused by the fact that the court was found-

[55]) A. Fakhry, The monuments of Sneferu at Dahshur. II, Pt. 1 (Cairo 1961), figs. 1, 3.

[56]) H. Ricke, Das Sonnenheiligtum des Königs Userkaf. I. Der Bau, (Kairo 1965), Plans 1, 5. On p. 43, the Lower Temple is dated to the reign of Nyuserre.

ed at a later stage of construction, certain given facts had to be respected, and thus the geometry of the plan was restricted.

The same as the ground plan, the elevation of the pillars and lintels in the Pillar Court of the Mastaba of Ptahshepses is grandiose. To a certain extent we can define the heights, even though most of the pillars end in stumps in their upper part. As far as the height is concerned, the best preserved are the pillars on the western side of the court. One of them — according to the measurement from 1961 (Korecký—Strouhal) — reached a full 3,9 m above the floor level.To reconstruct fully the former height of the pillar we would have to know the exact dimension of its broken-off top. It is not possible, of course, just to add the identified dimensions of the broken-off tops. We do not know which top belonged to which pillar. Here another fact helped us — we compared the inscriptions and titles complementing the relief of Ptahshepses in the central part with those on the broken tops of the pillars.

The very existence of the figural relief on the pillars was discovered by finding Ptahshepses' head on pillar no. 20, disengaged from the sand. The whole of Ptahshepses' figure emerged from the sand on pillar no. 14, on Nov. 4th. An especially perfect relief of the symbolic figure of Ptahshepses was revealed on pillar 17 (Nov. 6) and pillar 18 (Nov. 7). It was on the same day that we first learnt of the existence of the horizontal inscription above the relief of Ptahshepses' figure (fig. 55). Besides the main reliefs the faces of a number of the pillars show secondary engravings of geometrical patterns, closed or meandering patterns and others (fig. 56).

The height of Ptahshepses' relief on all the pillars is almost the same: about 150 cm above the floor level. The height of the figure itself is identical in all cases, too. On pillar no. 18 it was measured as 138,5 cm. The horizontal inscription above the figural relief is 24,6 cm high, its width being 55 cm. The gap between the inscription and the figure is 7 cm. The figural composition with the inscription on the preserved part of the pillar thus reaches the height of 320 cm above the floor level of the court. When the findings have been evaluated on a wider scale and compared to other similar examples, the extraordinary value of the sunk relief on the preserved face of the pillars of the Pillar Court will be confirmed. Without any doubt this will belong among the exceptional reliefs of the Old Kingdom and of Ancient Egypt in general.

Ptahshepses' figures on the pillars are turned either to the right or to the left. This is no mere chance. The figures were placed in this manner to mark the direction of "the Lane of offering ritual" (fig. 54). The "Lane" started probably near the south-east depository where offerings were kept. Then it followed the main axis into the court, to the ritual offering table, which has the shape of *ḥtp* sign, and to the libation basin. That is why the reliefs of the southernmost gallery turn facing each other and the opposite position of the figures on pillars nos. 13 and 14 flanks the archway to the court. From the open court the way continued between pillars nos. 1 and 20 in the north-west corner to proceed later into the burial chamber proper. This part is called the Initial Mastaba. Two sarcophagi were discovered in the subterranean space here, and the third one in fragments.

The orientation of the figures on the pillars is then bound by clear laws. Whereas in the north-east corner they follow each other to the left, in the north-west corner they face each other. To accentuate the exit of the "Lane" from the court corner pillar no. 1 bears Ptahshepses' image. On the contrary, the corresponding north-east corner pillar, no. 6, lacks the relief altogether. It is worth mentioning that the upper part of the figure on pillar no. 1 was damaged and a conspicious line is still to be seen on the pillar where the layer of sand had reached at the northern limit of the pillars (fig. 57).

The composition of the relief of Ptahshepses' figure is naturally based on an older pattern, already used elsewhere. We know examples from Egyptian and other museums, and from the terrain[57]). The manner in which the figure steps out, the depicting of the arms and hands, the respective attributes and the whole posture of the figure had been tried out in the course of development. Nevertheless, it cannot be denied that the artefact is extremely attractive and "alive". The existing stereotype was in this case handled more freely. The relief symbolically accentuates the grace of movement, beauty and physical form of the bearer in emphasizing the anatomy of the body and the play of muscles. The deep lines cut in the beautiful Tura limestone reflect the profesionality of the sculptor, his sense of colour and his ability to estimate the final effect in the sharp sun light. Also the profile of the head is perfect: with an emphasized eyebrow (3.5 cm in length), a hollow for shadow under the eyebrow, and the tearduct, too. The breadth of the shoulders being 37 cm, the waistline was narrowed to mere 15.5 cm. In this context it is then striking that the artist did not feel any need to distinguish between the inner and outer side of the foot. It is not certain either that this detail is of his own making.

It is surprising that the whole composition of the figures and inscriptions is bound by a strict geometrical principle in the whole pillar wall. The figure of Ptahshepses is interwoven in the geometrical pattern by a series of verticals of the width of the inscription field above the head of the figure, i.e. 55 cm. The verticals are parallel to the edge of the pillars and about 23 cm from it. The stability of the figure proper was based on an isosceles triangle with the apex in the crown of the head or, more exactly in the wig (fig. 58). The lower horizontal outline of the skirt is bordered by the lower third of the basic oblong. Other compositional regularities can be detected. This is important as there is again no evidence of anything similar in the large number of reliefs of the first dynasties or in the art of Ancient Egypt in general.

The tops of the pillars, "cut-off" by desert erosion provide important information for estimating the original height of the pillars. Furthermore, we found out that the inscriptions still continued upwards in vertical strips up to the head of the pillars. This is evidenced by almost indistinguishable, yet demonstrable traces on the preserved face of the pillar top (fig. 59). Two vertical columns of hiero-

[57]) E.g. a very similar relief cut in limestone on the false-door to the tomb of Tjetji (Dyn. IV) (British Museum no. 157 a).

glyphic text can be seen there, in the sunk relief. These vertical columns are perpendicular to the lower horizontal strip with the name of Ptahshepses.

After discovering these traces and the basic geometrical connections between the parts of the inner pillar face, it was necessary to continue the research in co-operation with an Egyptologist[58]). Ptahshepses' titles do not seem to have been identical in all cases (figs. 60 and 61). It is evident that in at least two cases the titles in the upper part of the pillar began with *s3-nỉśwt*, "Son of the King". This in itself is a surprise, as the structure belongs to the nonroyal constructional type. A possibility cannot be excluded that the titles began with a different title. This is a hypothesis based on the analysis of the third fragment of the pillar top, considerably damaged by erosion. Is it possible then that the titles beginning with *s3-nỉśwt* alternated in a certain rhythm with other titles? This idea will have to be verified in the future.

The pillars continue upwards in the lintel structures of the architraves and further in the cover blocks of the gallery. The current architraves, also of limestone, are 242—244 cm long and their width corresponds to the side of the pillar, i.e. 100.5—101 cm. The height of the architrave is 103 cm. In the most famous and best preserved pillar structure of the Old Kingdom, the Valley Temple of Chephren at Giza the length of the architraves in the respective fields varies between cca 3.20 m to 3.70 m. Compared to this, the Court of the Mastaba of Ptahshepses shows a relatively dense sequence of pillars. The granite pillars of the Temple of Chephren moreover evidently show a clear module in cubits[59]). That is why we are surprised by the fact that the width of the pillar, the same as the overall square layout of the ground plan of the court of the Mastaba of Ptahshepses do not keep to the exact module in cubits, or disregard it. We wonder why the architect did not use the module especially here.

The footing of the architrave blocks on the pillars in the court of the Mastaba was secured by wooden pins. The traces of the pin-pits are evident in numerous places. On the lower face of the architrave they were drilled at a distance of cca 26 cm from the edge of the block. The interconnection of the architraves was secured by large dovetail indents on the upper part of the blocks: 27 cm in both width and length and cca 18 cm in depth. These indents in the stone provided sufficient adhesion of the faces of the blocks. In the indents we also found remnants of the original pinkish mortar.

During the excavations in 1961, on Nov. 8th, we uncovered another rare architectural element, a corner architrave (fig. 62). It evidently belonged to the southeast corner of the pillar court. It is analogical to an older, and similarly rare finding of a corner architrave from Borchardt's excavations

[58]) Professor J. Černý promised to help me interpret the inscription. The cooperation did not materialize because of his death. Later on I was aided by Dr. M. Verner in reading the inscriptions on the tops of the pillars.

[59]) Also the pillar of the Valley Temple of Userkaf's Sun-Temple at Abusir from the time of Nyuserre (Dyn. V) (Plan 5 — see note 56) is based on its ground plan (3 by 2 cubits) on the exact multiple of one cubit. This cannot be overlooked in comparison with our structure as Userkaf's Sun-Temple belongs to the last examples of the type — before the pillar was substituted by the column (as we can see e.g. in the Mortuary Temple of Sahure at Abusir).

of Nyuserre's Upper Temple at Abusir[60]). Nevertheless, there is an important difference: Borchardt's finding is made of granite, whereas our corner architrave is of much softer Tura limestone. However, its profile has been preserved which is important for our conclusions. The conditions for shaping a complicated corner architrave in more fragile limestone were different from those in granite. In the corner two architraves meet — one of the northern row and one of the eastern side. The oblique contact surface where the face of the eastern architrave should adjoin has not an angle of 45° as we should expect. The angle here is more obtuse — some 49° to 50°. Besides, and this is especially important, the contact surface does not start exactly at the fracture of the face plane but it form a short dent of about 5 cm. That means that also the vertical of the inner corner is thus precisely determined. The blocks are built together with regard to safety and at the same time the purity of form is preserved. The small dent presents an explanation to the question why the corner pillar has a different ground plan from that of the side pillars. Its base is prolonged because of the safer footing of the corner, in the direction of the dent. The square of the side of 101 cm then becomes an oblong of the dimensions 111—112 cm (fig. 63).

We found that the relief and inscription decoration appears not only on the face of the pillars but also on the sides of the architraves that face the court. On the preserved blocks three horizontal lines with Ptahshepses' name are repeated, ending up again in the symbolic figure of Ptahshepses. The titles on each of the three discovered pieces of the architraves differ. As we can see on the corner architrave itself, the reliefs differ from those on the pillars. The arms, for example, hang down, the triangle headcloth of the "skirt" of Ptahshepses, so typical of the pillar figure, is missing entirely.

The composition of the court face, from the pillars to the architraves, is characterized by a regular layout of the surfaces, by mutual dependence of the vertical and horizontal fields, the relief figures, hieroglyphic texts and titles. The creative quality of this work of art is still further increased by the already mentioned vastness and the exceptional number of pillars which may be compared in height to the pillar interior of Chephren's Valley Temple at Giza. The height of Ptahshepses' pillars cannot have been less than some eight royal cubits, or even more. We can reach the sum by addition of the respective heights above the floor level: from the paving to the figure of Ptahshepses cca 150 cm. The height of the figure is 138.5 cm, the gap under the horizontal inscription 7 cm and the height of the horizontal field with the name of Ptahshepses is 24.6 cm. The estimated height of the vertical inscription measured from the upper edge of the fallen top downwards is 104 cm, perhaps as much as 120 cm. This value was estimated on the basis of the traces of the inscription which are almost erased, yet still detectable. With the value of 104 cm the overall height of the pillar is 424 cm, with that of 120 cm it is about 440 cm. An average pillar of Chephren's Valley Temple made of pink granite has a base of two cubits and height of about 8 cubits. The pillar of the Mastaba of Ptahshepses, made of Tura li-

[60]) L. Borchardt, Ne-user-re^{c}, p. 55, figs. 35 and 36.

mestone, has a dimension a little less than 2 cubits — it is therefore slightly slender and perhaps would also have been a little higher. In any case the smaller distances between the pillars of the Pillar Court of the Mastaba of Ptahshepses increased the emotional effect of the structure and emphasized the relief decoration of the court face.

With the height of the architrave 103 cm, the whole height of the monolithic blocks of the court face of the gallery reached about 5.27—5.43 m. Then one must add the height of the ceiling blocks which roofed the gallery. This datum is still rather hypothetical. However, the error in the estimate cannot be more than several centimetres. No block nor fragment was found that could be proved explicitly and without any doubt to have belonged to a ceiling block. We did find a fragment of a broken block, near pillar no. 9. It is reminiscent of a cornice. Its face thickness was about 48 cm, the thickness of the lintel was cca 44 cm. Its top surface, 45 cm wide, receded at the back by 4 cm, and in the face part it was bevelled by 9 cm. Comparison to similar fragments of the cover blocks from the temples in the Abusir area of Sahure's and Nyuserre's period would agree with our dimensions. The fragments, according to their span, show a thickness of 70 cm and even as little as 38 cm. Our dimensions would confirm the idea of development proceeding to a subtler form at the beginning of Dyn. VI. We can mention here the example of the Upper Temple of Teti where the thickness of the cover blocks decreases to a mere 32 cm[61]).

From what has been said we may assume that the overall elevation of the blocks of the Pillar Court in the Mastaba of Ptahshepses could reach the height of 5.7—5.9 m. This dimension, too, shows the exceptional character of the structure in its type, i.e. as a non-royal structure. During Dyn. V the pillar in almost all the courts of the pyramid temples was substituted by the column. The pillars in the grandiose square composition of the South Court of the Mastaba of Ptahshepses (second half of Dyn. V) then acquire a new qualitative significance and validity. The structure continues in the development of the pillar as a primary space-forming element. Its validity survives up to the ascension of Dyn. VI, the date of the origin of structures such as the large court of Teti's Temple whose 18 pillars were oriented in depth, as in Dyn. V, and not transversely as was customary in Dyn. IV.

The Pillar Court represents therefore a very important component of the structure of the Mastaba of Ptahshepses. In its significance it is equivalent to the false "roof" vaulting above the burial chamber[62]), the hypothetical boat-shaped room and especially the eight-stems columns of the south portico. The pillar court is another proof of the hybrid character of the Mastaba, and it classifies the Mastaba of Ptahshepses as a type between the ordinary Mastaba and a pyramid temple.

[61]) J. Ph. Lauer, J. Leclant, Le Temple haut du complexe funéraire du roi Teti (Le Caire 1972), p. 18, fig. 4 and plan XXXVII, Coupe 1.

[62]) Its span — over 4.5 m — can be successfully compared to a similar structure from the Mastabat Fara'un, or to the interior of the burial chamber in the Pyramid of Unas at Saqqara.

THE EIGHT-STEMS COLUMNS OF THE EAST PORTICO OF THE MASTABA OF PTAHSHEPSES AT ABUSIR

MIROSLAV KORECKÝ

Almost seven decades elapsed between the discovery of the six-stems columns of the Mastaba of Ptahshepses by De Morgan and the new finding of the eight-stems columns (figs. 64—68) of the east portico of the same structure by the Czechoslovak expedition in November 1961. De Morgan's discovery at the end of the 19th century (Revue Archéologique, 1894, p. 28) contributed a lot to knowledge that the multistem stone column dates back not only to the New Kingdom and sporadically to the Middle Kingdom, but that it was already being developed in the times of the Old Kingdom. The Czechoslovak finding of the eight-stems column completed the picture of the original development of the multistem column in the Old Kingdom. It becomes clear that already the architectural development of this most basic building element, a perfect support, reached its top level in the times of the large stone pyramids. Contrary to all the suppositions, the second half of Dyn. V was already able, with the aid of the eight-stems column, to develop the stereometrically and functionally most perfect shape of the multistem support. The column was also developed from the point of view of the sculptor's work, and its form was refined.

Until 1961 there had been hardly anyone who dared anticipate the existence of the eight-stems column in such a distant period of Ancient Egypt. It was even less probable to expect the discovery of a wonderfully intact pair of such columns preserved as they were by a layer of sand. The pair of columns forms part of the stately portico of the Mastaba, set back several hundred yards off the bank of the Nile. It probably dates back to the time of King Nyuserre. Naturally we keep in mind another example of the eight-stems columns at Saqqara in the ruins of the temple dating from the reign of King and Queen Djedkare Isesi. Those columns were discovered by Abdel S. Hussein in 1946. They, however, are of later date, from the end of Dyn. V. In both the 19th and the 20th century our conception of the eight-stems columns is seen in those of the well-known temple at Luxor. These are the New Kingdom columns, from the times of Amenhotep III and they differ from the classic form of the Old Kingdom in that they were reduced in their basic shape. Though of much later date, they still represent a prototype of the eight-stems column, perhaps also because they were presented to the public by means of the unique photographs taken by Maxime du Camp in the middle of the 19th century.

The pair of limestone columns of De Morgan's discovery, the granite columns, also of the six-stems sort (but of the papyrus type) from the Upper Temple of Sahure's Pyramid discovered by L. Borchardt at the beginning of the 20th century, and last but not least the complex work by George Foucart (L'histoire de l'ordre lotiforme, Paris 1897) were to close the research into the multistem, or six-stems column, of the Old Kingdom for a long time. No evidence of the existence of the eight-stems column in the Old Kingdom and of the coexistence of the six-stems and eight-stems columns in the Mastaba of Ptahshepses at Abusir had been produced until the latter part of the 20th century, i.e. until our discovery.

Why was it so when the Mastaba of Ptahshepses had already undergone research at the turn of the century? The question can be answered only in part: when once — thousands of years ago — the structure of the columns and solid lintels of the east portico of the Mastaba of Ptahshepses collapsed, the columns fell in a low layer of sand which was, however, deep enough to prevent them from breaking on the pavement. They broke into halves because of their weight and the percussion of the heavy structure of the cover blocks on them. One block covered from above the access to the nearest, northern column. It became now reason for further and deeper excavations in this area of the structure. It may have meant, however, the slowing down of further excavations in the case of De Morgan, or it may even have discouraged him from going on in this north-east sector of the Mastaba.

At the end of October we came across a block broken lengthwise whose greater part lay on the shaft of the northern column at an angle of 36°. We could verify the existence of the shaft of the eight-stems column under it by October 31 and that the capital on November 1, 1961. The lower part of the block held the lower part of the conic shaft of the northern column onto the pavement (as we found out later). The column was tilted eastwards in the sand subsoil, at an angle of about 22°. It was broken next to the capital. As soon as we shifted the ceiling block, the column was partly disengaged, and it was first measured between Nov. 14—16, and in greater detail on Nov. 28. From the situation it was possible to anticipate the existence of the other, southern column.

Already the first examination of the capital showed that from the viewpoint of architectural development the column represents an exceptional piece. It showed a precise geometry of the module, unseen in the previously published findings of the columns. It also showed a consistent ratio dependence: the height of the throat reeving, i.e. the fictive mark of the contact of the capital and the shaft of the column, 37 cm, is also the dimension of the abacus. In fact, the height of the throat reeving from the ruins of Niuserre's Temple at Abusir is the same. Contrary to this, the abacus proper of the capital from Niuserre's Temple is only 27 cm high. The column of the new discovery suggested from the very beginning a new type on the eight-leaf base, an architectural element of a new qualitative stage.

After the first measurements, which were difficult because of the column being broken, its length was estimated at approximately 6.08 m. This includes the shaft, capital and abacus — so far monolithic.

In this stage of development the base was part of the pavement. It was a floor slab partly cut in stone into the circular base proper, tilted from the face of pavement. This finding is in the line with the foundation of the oldest multistem column known so far: the six-stems granite column of the Temple of Sahure's Pyramid which is only 4.43 m in height (Cairo Museum, hall no. 32, no. 222). The same feature characterizes the column and base in Nyuserre's Temple at Abusir. The granite bases of those columns belonged to the pavement. The column of Sahure's Temple lacks even the abacus of the capital which in the first conception was not its component part, nor was it part of the monolithic body of the column. The base of the column of Sahure's Temple built in the basalt paving and therefore still *in situ*, shows, however, much smaller dimensions (height 12 cm, the upper diameter 92 cm, the lower 109 cm) than the base of the eight-stems column of the Mastaba of Ptahshepses.

The limestone base of the newly discovered eight-stems columns has an upper diameter — at the level of the step of the shaft — of 139 to 140 cm, a lower diameter — at the level of the pavement — of 166 to 168 cm and a height of 16 cm. As a direct part of the pavement, the base guaranteed sufficient stability and the exact position of the column. Even though the structures of the columns and lintels of the bases, built in the paving with a precision of 1 cm, collapsed, they show evidence of the original situation of the columns and their interaxial. The bases of the columns, especially that of the southern one, left in the low layer of mortar (or crystallized surface layer) an eight-leaf impression of the outline of the foundation of the column. We took away an impresion at the beginning of December. In the base of the southern column we found, furthermore, a wooden pin which had been preserved there. It was another important item in our discovery in 1961.

The wooden pin in the axis and in the pin pit, together with the layer of fine mortar, protected the position of the shaft on the base. The width of the pin pit varies in the two columns between 11.5 to 12.5 cm, the depth between 12.5—14 cm. The pin of the southern column is exactly 14.2 cm wide. For comparison, let us mention here the considerably smaller dimensions of the pit of the eight-stems column of Sahure's Temple: diameter 7.5 cm, depth approximately 7 cm. The fact is they are also smaller because they are made of granite. The pin of the northern column was so rotten that it disintegrated virtually at the moment of its discovery. Its remnants, however, served as material for isotopic test C 14 in the British Museum. The pin of the southern column was found as a fully compact piece of 22.3 cm in length; its upper part was still to be seen in the pin pit *in situ*. It was slightly displaced — with an angular displacement of 2° southwards and 5° eastwards. On the northern side of the pin pit there was about 1.5 cm clearance whereas on the northern side only 0.5 cm. The diameter of 9.5 cm of the pin suggests then that although the wood used was of high quality, probably cedar, the substance of the pin had undergone some drying-up in the course of ages. The facts will have to be verified by a laboratory test in the future. The position of the pin *in situ* demonstrated how the column by the percussion of the block on the capital from above "slipped" perfectly out of the base. It testifies to the already high technological experience and familiarity with the materials in the

time of the first dynasties. The constructors evidently did not fear the expansion of the wood under the influence of atmospheric humidity, a factor which would have to be taken into consideration anywhere else.

The discovery of the pair of eight-stems columns brings with it a lot of additional information. The purpose of the columns in the portico is shown also in the exclusive dimensions, unusual for the type of Mastaba of that period. This shows clearly in comparison with the western portico of the Lower Temple of Nyuserre at Abusir, especially with the vertical cut of this portico where the height of the column does not reach 6.5 m (L. Borchardt—Blatt 5, Das Grabdenkmal des Königs Ne-User-Re, Leipzig 1907). The basis for the dimensions of our column is the basic measure of Ancient Egypt, the royal cubit. The lower diameter of the conic shaft by means of which the column sits on the base, is 104 cm, i.e. exactly 2 cubits. We can verify the dimensions of the shaft by comparison with the shaft of the multistem, the inversely fluted threequarter columns of the interior of the entrance passage to Djoser's enclosure at Saqqara, made by Imhotep (at the beginning of Dyn. III). There the diameter is the same: 104—105 cm, i.e. 2 cubits, with a height of 6.6 m (fig. 12, J. Ph. Lauer, Les Pyramides de Sakkarah, Le Caire, 1961).

In the eight-stems columns of the Mastaba of Ptahshepses the measurement of 2 cubits was characteristic. It stamped the module of each of the columns. The lower diameter of 104 cm is also projected on to the head where it determines maximum diameter of the crown of the curve in the calyx of lotos flowers. Thirdly, the dimension of the square of the base of the abacus is 104 cm, too. Other evidence does not exist from the times of the Old Kingdom of such a case of submission to the basic module of a free architectonic support.

On the side where the capital of the column had sunk in the sand, its shape remained unbelievably well preserved. On the opposite end where it had been for some time submitted to desert erosion and blasts of wind, its surface had been considerably damaged. It had been hollowed in a way similar to the tops of the pillars of the south pillar court of the Mastaba. Nevertheless, even there the traces of the pin pits remained. It is possible to identify and measure precisely the pits on the upper side of the abacus. The breadth of the abacus being 104 cm, the pits have axial distance of about 49 cm and about 25—29 cm from the edge of the abacus. The pits which provide the connection between the column and the lintel of the architrave, are not much different from the base pits of the columns. The breadth of the pits is about 10—11 cm, the depth 13—14 cm. It was possible to find a distinct line for the base of the architrave on the surface of the abacus at a distance of 50.5 cm from the edge in the south-north direction.

There is one more ratio dependence in the whole of the eight-stems column. The height of the column, including the base, to the width is defined by the ratio of about 12 : 2 cubits, i.e. 6 : 1. The development of the limestone column of the east part of the Mastaba to this stage attains the ideal "model" of a column, perfect in the view of stereometry and proportions. It meets all the requirements for

purity of form. It excludes all the geometric discrepancies of form that could not have been avoided with the six-stems form of the column. Yet, when we consider the basic shape and the stylized bunch of lotos buds, the six-leaf column of De Morgan's discovery and the eight-stems column of the 1961 discovery are close in type.

In particular we must realize that it is not possible to circumvent a six-leaf form by an exact square which is indispensable for the base of the abacus. With the six-leaf form one dimension will always be larger. Here we can use the botanical nomenclature. Axial symmetry of the sixth degree, i.e. the symmetry of the six-leaf by the geometric principle itself will not be enough to bring about the transition of the head into the abacus in the desirable perfection and purity of form. However, it is possible in the axial symmetry of the eighth degree, with the eight-leaf. And here comes the explanation of the hesitation of the stone cutters which can be noticed in the form presented in the fragments of the capitals of the six-stems columns, the same as in the fragments of the palm-heads in the ruins of Abusir temples.

The palm column, or more exactly the date-palm column, in its stone prototype well-known as the granite column of the Upper Temple of Sahure's Pyramid, had been defined, unbelievable as it may seem, by a nine-leaf. It has also been a hitherto unexplained, conspicious feature of the palm head. It had been repeated since its original form in wood: in the handless cased in gold of the canopy of Queen Hetepheres (the beginning of Dyn. IV). We know it from the wooden heads of the cockpit of Cheops's funeral boat dated to the half of Dyn. IV. At Abusir, during the reign of Dyn. V, it had been re-valued: the wooden form had been transferred into a more durable material. Repeated signs of uncertainty in the corner sections of the abacus above the nine-leaf head of the date-palm column can be seen in the columns of Saqqara (Cairo Museum), and in the palm columns (British Museum nos. 1385, 1123; up to the times of 850 B.C. — no. 1065). In comparison with the date-palm head, we wish to emphasize an important fact: the development of the multistem columns had been consi- derably different from that of the palm column. It had already developed a great deal in the original stage, and it had even reached, during Dyn. V, an optimum of this form.

We still do not know exactly what is relation in time between the Abusir columns and the finding of the columns at Abu Roash. It is also a pair of columns in the form of bare limestone stumps (probably six-stems columns with the lower diameter of about 55—60 cm, 2.2 m in the intercolumniation), found by the author on March 7, 1968. As the palm columns had been preceded by their wooden form, so also the multistem lotiform column of Abusir had its predecessors and successors. Let us mention here the wooden lotiforms of the court of the Mortuary Temple of Neferirkare at Abusir as an example of the former. A tiny model of a lotiform column with a conspiciously wide capital had already been known at Heluan in Dyn. I. The model of the bunch column in bone was discovered by Zaki Saad in 1945—47 in tomb no. 116. A noticeable element there is a tiny pin on the lower part of the support and also the shaft narrowed downwards which is a form used more on the islands and

untypical of Egypt. The stylized motif of the lotos flowers as a column, and in other forms, is a frequent exhibition item in museums (Cairo Museum, Brussels Museum, etc.). The motif of the stylized lotos buds can be found in other cultures, for example in that of the Etruscans up to the 7th century B.C. (British Museum no. 2074).

Even though more concrete evidence will be necessary we can already conjecture that the eight-stems column of the Mastaba of Ptahshepses represents a prototype of the peak of development of this form in the Old Kingdom. The origins of this form had probably been connected with the material, i.e. the Tura limestone. It had been promoted by Imhotep at Saqqara in Dyn. III to the material in which the articulation of the first architectural form had come into existence. Limestone made it possible to choose and master a richer, more divided and in detail more complicated form, than it was possible with the hard granite of the royal structures. Let us mention for example the high plasticity of the lower part of the calyx of the head and the eight-stems column with the stylized five-strip twining. It was particularly the addition of the stylized lotos buds with a short leaf-stalk, a sort of "minor" element added to the basic components of our column, that made it so wonderfully plastic. The same principle, also in limestone, enriched the basically simpler and somewhat older six-stems columns of the Mastaba of Ptahshepses from De Morgan's discovery (Cairo Museum, Catalog Général des Antiquités Egyptiennes du Musée du Caire, no. 1748). Contrary to this, the shaft itself, of the limestone columns of the Mastaba of Ptahshepses has the simplest form, a mere taper (which corresponds to the early stage of Doric columns of Ancient Greece 19 centuries later).

The eight-stems columns of the east portico of the Mastaba of Ptahshepses most probably date back to the reign of King Nyuserre i.e. the second half of Dyn. V, cca 2450—2420 (or, rather, 2430 to 2400) B.C. They are followed by the columns of the time of Djedkare Isesi from the end of Dyn. V. Then the eight-stems column became more widespread in the Middle Kingdom. The interpretation of the form, however, lost in the purity and richness of the plastic detail, as we can see in the columns of Medinet Madi near Fayum, dated about 1880 B.C. (the reign of Amenemhet III and IV), or the eight-stems granite column (British Museum no. 64).

Three and a half thousand years were necessary to develop the rudimentary form of the shaft and the sort of overhanging capital in wood and clay at Anatolian Catal Hüyük into the perfect form, cut in stone, shaped in accordance with the inner forces, i.e. the eight-stems column of Abusir. The oldest known examples of Catal Hüyük (discovered by J. Mellaart) are not independent support but pilasters and semi-columns, always attached to the core wall (Anatolian Studies 1962, fig. 8; 1964, fig. 9, Plate IVa, etc.). A similar principle with the precise outline of the bed joints, but already in cut stone, is inherent in the architecture of Imhotep, under Djoser's Pyramid at Saqqara. This discovery was clarified in detail by J. Ph. Lauer.

Imhotep was the first to express the support in its basic components, namely the base, the shaft and the capital, and for the first time in stone. Nevertheless his works from Dyn. III reflect nothing

but a suggestion of a support, expressed only in relief. It corresponds to the transition from lighter materials to durable ones. Only the following Dyn. IV saw success in creating a supporting tectonic element in the form of a pillar, at the beginning of the dynasty, in fact, and then a rudimentary form of the first stone columns from the middle of Dyn. IV onwards. The ascension of Dyn. V meant the development of this form and its attaining at Abusir, 3500 years after Catal Hüyük, a shape which in reduction and addition of substance by curve, relieves the tension in the support caused by the weight from above, the pressure of the architrave and the cover blocks. The Czechoslovak discovery at Abusir in 1961 is then a significant contribution to the knowledge of the process of development of the support and fulfillment of this process in the perfect stone column.

The research in the Mastaba of Ptahshepses is far from finished. Even for the given subject matter a wider context and a more detailed elaboration generally will be necessary. It will also be necessary to renew the architectural investigation, and to solve many problems connected with the conception of the east portico. The relation between the axes of the six-stems and the eight-stems columns will have to be verified as to whether there is a precise axial alignment. This fact is also important for the identification of the constructional stages of this part of the Mastaba. For the same reason the floor level of the six-stems and the eight-stems columns will have to be verified. Many fragments of the columns will have to be examined and classified according to their size. Some exhibits of the museums and depositories, for instance those of the museums in Dresden or Heidelberg, will have to be considered and valued, either as a whole, or as fragments.

The identification of the fragments may help solve an important question: whether the portico facing south, the pillar court, had pillars or columns. The broken conic shaft of a six-stems column the lower part of which was found *in situ* in the Mastaba of Ptahshepses and the upper part of which is in the ownership of the Cairo Museum, offer the possibility of ascertaining the hitherto undetermined height of the structure and the height of the space of the six-stems columns. Precise measuring of the angle of taper and the interpolations on both the ends of the shaft should be done. This will be important for the overall picture of the interior and the elevation of the Mastaba in this part. More detailed knowledge will thus be obtained of this important part which, as we have so far thought, gradually developed from west to east. In the west it is enclosed by the cult wall with three niches for sculptures which is rather extraordinary in the given constructional type. We should perhaps also mention one of the structures of the Middle Kingdom at Medinet Madi near Fayum. As far as that location is concerned, the particular layout of the Mastaba of the Old Kingdom seems to have survived but with depth axis in a reduced form.

On the east side the column space of the Mastaba of Ptahshepses opens into a stately portico with the eight-stems columns. The beginning of Dyn. V at Abusir saw the creation of a new figure, even though in a simpler form: the south portico of Sahure's Mortuary Temple. The west portico of the Valley Temple of Nyuserre — together with other portico figures — in a certain sense then completes

its development. Comparison of size is important for us here, too. Besides the above mentioned height, the west portico of the Valley Temple of Nyuserre has a depth of 4 m. The portico of the Mastaba of Ptahshepses has then a depth of 4.09 m.

The plan of the eight-stems columns is shifted by about 8.5 m to the east, contrary to that of the six-stems columns. The interaxial of the eight-stems columns is 2.98 m. The side walls advance the plane of the axes of the eight-stems columns of the east portico by 1.7 m. The faces of the side walls that flank the columns show an angular slope of about 82°, with the maximum height of the walls at 1.57 m. Up to the height of 1.48 m the wall is red-brown, then there is a 9 cm high yellow strip. Even the colours here are conspicious in comparison with the south portico of the Mortuary Temple of Sahure, which is also open to the east, i.e. to the Nile.

If the height of the eight-stems columns (bases included) of the Mastaba of Ptahshepses is about 6.24 m, and if we estimate the height of the architrave at about 1 m and that of the roof block at about 0.6 m (59 cm), the whole height of the elevation of the east portico in the north-east sector of the Mastaba can be estimated at 7.85 m. It must have been a stately structure for the given constructional type, for a non-royal structure at the base of Abusir pyramids. The portico then contributes to the extraordinary character of the Mastaba of Ptahshepses. It shows a grandiose scale and a number of characteristic features which could easily belong to a royal structure.

By omission the article by Professor Dr. Miroslav Korecký is not documented by the author's original measurement and photographic materials.

REFERENCES TO FIGS. 45—51 (NOS. 1—49)

OLD KINGDOM

Miniatures

no. 1 — a bowl with convex walls (545)
2 — a bowl with concave walls (560b)
3 — a chalice (D 179b)
4 — a biconical chalice (D 229)
5 — a rimmed biconical chalice (D 138 a)

Medium sized vessels

no. 6 — a bowl with a recurved rim (E 4683)
7 — a fragment of the recurved rim with a strip of wash (s.n. 2, 27. 2. 1974)
8 — a "bread form"
9 — a fragment of a bowl with a lobe-like rim bent inside and with a remnant of a spout (s.n., 1. 4. 1974)
10 — a fragment of a vessel (deep bowl) with the mark of a bird (F 144 or 194)

Storage jars

no. 11 — a common type (J 1898)
12 — a stand (H 122)

Stone vessels

no. 13 — a "bowl" for seven sacred oils (1019/A 516)
14 — a collared bottle (C 947)
15 — a bowl (2291/E 1786 ab)
16 — a cylindrical vessel (J 1643)
17 — a libation basin (1981/E 341)
18 — a lid of a vessel (2429/E 2712)
19 — a semi-finished bowl (E 3685)
20 — a bowl with compartments for black and red paint (J 373)

SECOND INTERMEDIATE PERIOD

no. 21 — a fragment of a jug of "Tell El Yehudiya ware" (424)

NEW KINGDOM

no. 22 — a fragment of an amphora of Dyn. XX (J 1948)
23 — a fragment of painted pottery (J 1645) (the Temple of Amenhotep III?)

New Kingdom

no. 24 — a fragment of a stand (E 2246)
25 — faience sherd with the cartouche of Setchi I (J 1469)
26 — a faience sherd with remnants of a sign *mś* (?), (E 904e)
27 — a fragment of a faience bowl with an ornament of papyrus thicket? (J 1957)
28 — a fragment of a faience bowl (J 24)
29 — a fragment of typical painted pottery (J 1968 ab)
30 — a potsherd of the Aegean proto-geometrical character(?) (E 936)

LATE PERIOD

no. 31 — a bottle with a plastic knob from a tomb (I 378 k)
32 — a painted bag-shaped bottle (I 405)
33 — a storage jar with a pair of handles (I 374/1)
34 — a potsherd with a plastic floral motif? (E 1129), older than from the Late Period?
35 — a potsherd with the remnants of a hieroglyphical inscription (I 450)
36 — a fragment of a Bes'jug (I 438)
37 — a fragment of a "Kugelaryballos" (I 370/1)

GRAECO-ROMAN PERIOD

no. 38 — a fragment of a miniature pilgrim bottle (693 d)
39 — a fragment of Greek Pottery?
40 — the neck of a jug with a three-lobed mouth (unnumbered)

ROMANO-COPTIC PERIOD

no. 41 — a fragment of a bowl with a rib under the rim
42 — a rim fragment of a biconical vessel (I 409/1)

43 — a fragment of the eastern sigillata (I 372)
44 — a fragment of with a plastic medallion (J 1410)
45 — developed decoration of a Roman faience vessel (J 1762)
46 — a fragment of an amphora with ribs (C 909)
47 — a fragment of painted pottery (E 400)
48 — a fragment of painted pottery (F 76)
49 — a Coptic potsherd from the 11th century A.D. (J 1693)

All drawings are made in the scale 1 : 2, if not stated otherwise at the drawing. For an explanation of colours see fig. 51.

UNIVERZITA KARLOVA PRAHA

PRELIMINARY REPORT ON CZECHOSLOVAK EXCAVATIONS IN THE MASTABA OF PTAHSHEPSES AT ABUSIR

Uspořádal PhDr. Miroslav Verner, CSc.
Recenzovali doc. PhDr. Miroslav Buchvaldek, CSc., Prof. Dr. Fritz Hintze
Fotografie Milan Zemina a prof. dr. ing. arch. M. Korecký (č. 52—63)

Vydala Univerzita Karlova, Praha 1976
Prorektor-editor Prof. RNDr. Václav Prosser, CSc.
Odpovědný redaktor doc. RNDr. J. V. Černý, CSc.
Vedoucí univerzitní edice PhDr. Zdeňka Vávrová-Rejšková

Návrh vazby, přebalu a grafické úpravy Jaroslav Příbramský

Vydání I.

Náklad 1200 výtisků

AA 15,47 (z toho 6,78 AA vyobrazení), VA 16,10

Vytiskl TISK, knižní výroba, n. p., Brno závod 1, ul. 9. května

60-022-76
Kčs 33,00

PLATES

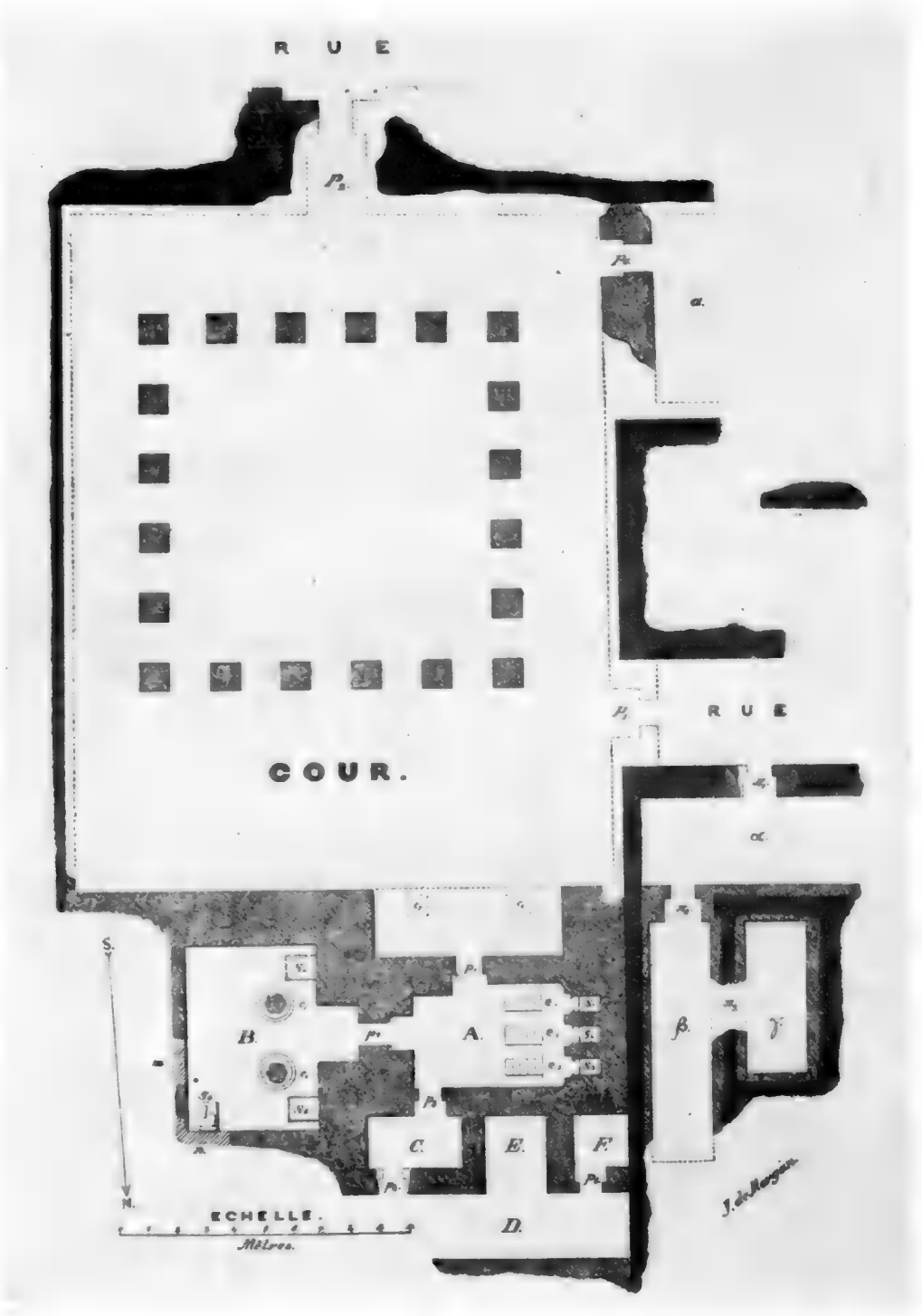


Fig. 1

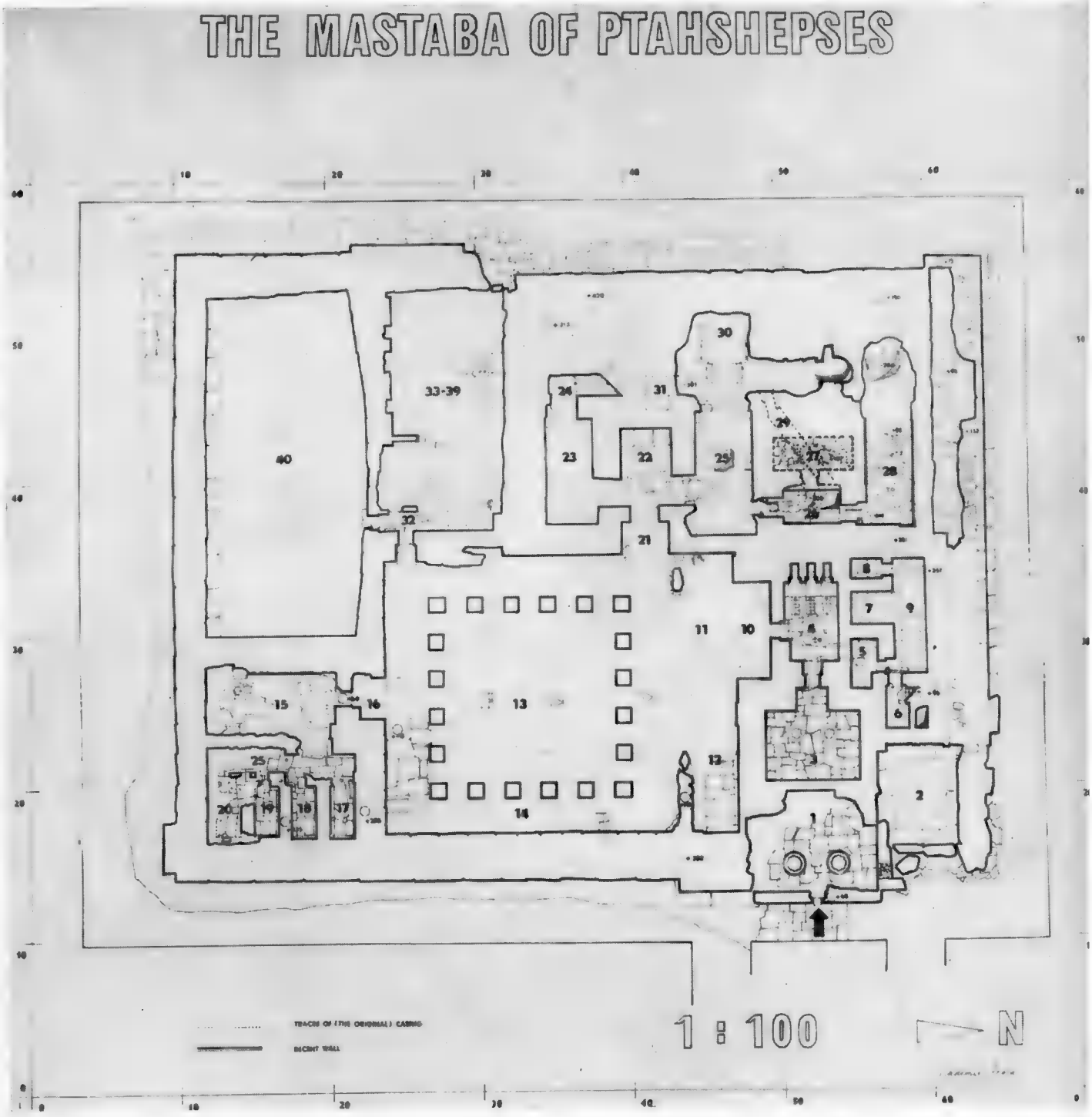

THE MASTABA OF PTAHSHEPSES
40
33-39
32
24
31
30
29
23
22
25
27
28
26
21
8
7
9
11
10
4
5
15
16
13
6
3
12
2
25
20
19
18
17
14
1
TRACES OF (THE ORIGINAL) CASING
RECENT WALL
1 : 100
N

Fig. 2

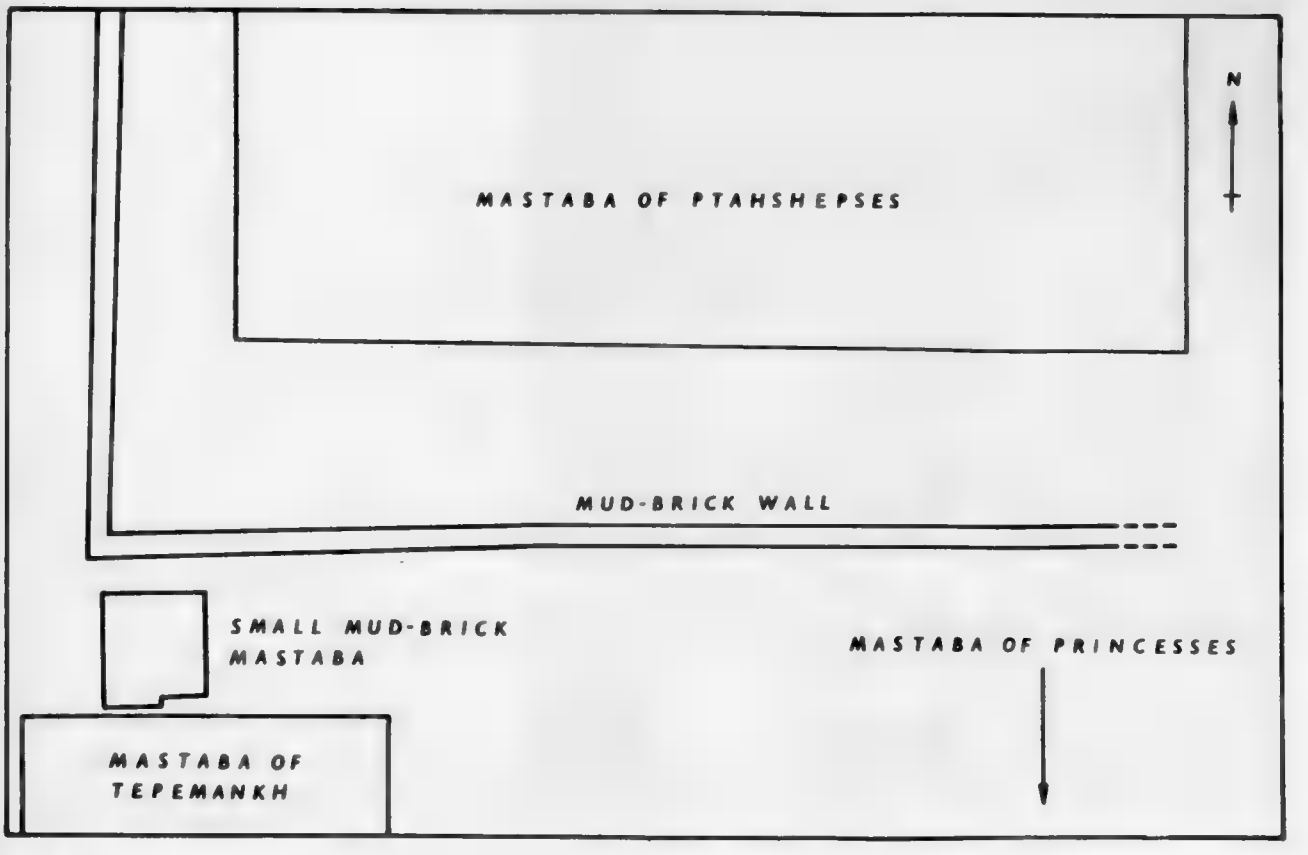

N
MASTABA OF PTAHSHEPSES
MUD-BRICK WALL
SMALL MUD-BRICK MASTABA
MASTABA OF PRINCESSES
MASTABA OF TEPEMANKH

Fig. 3

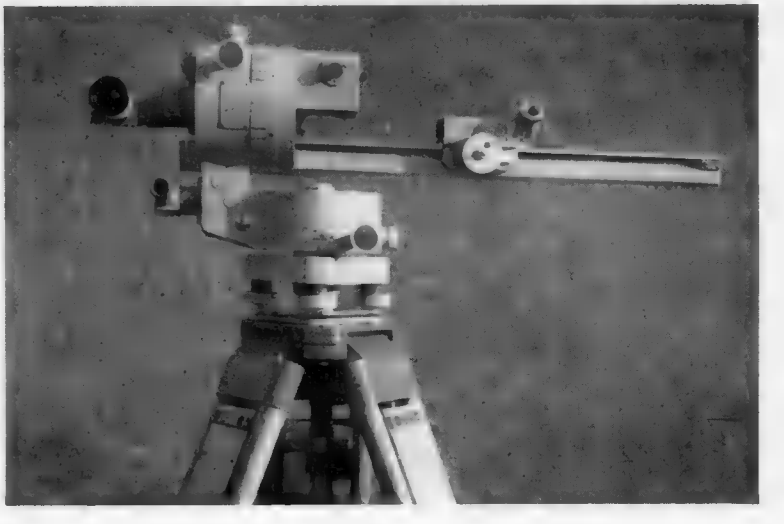


Fig. 4

Fig. 5

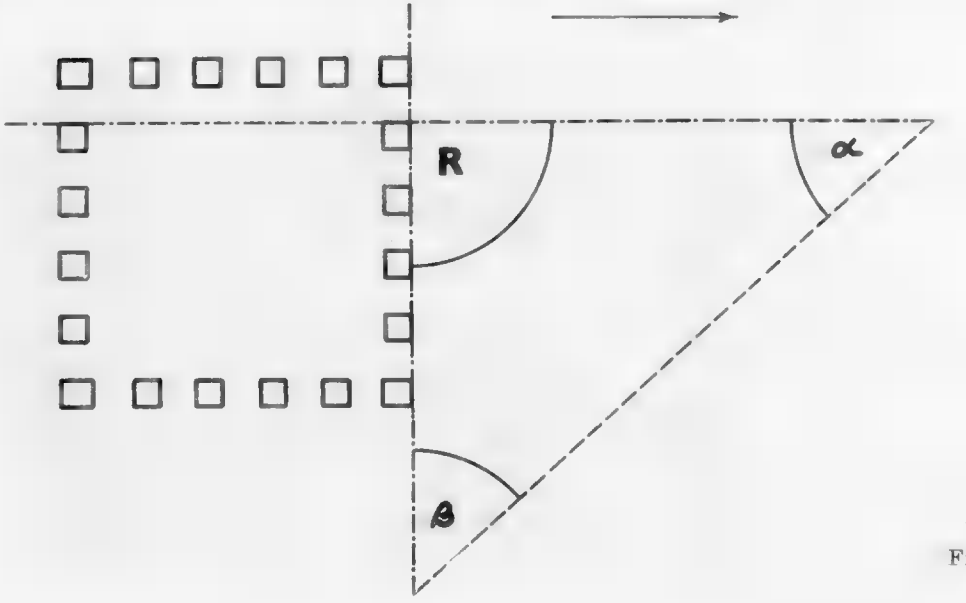
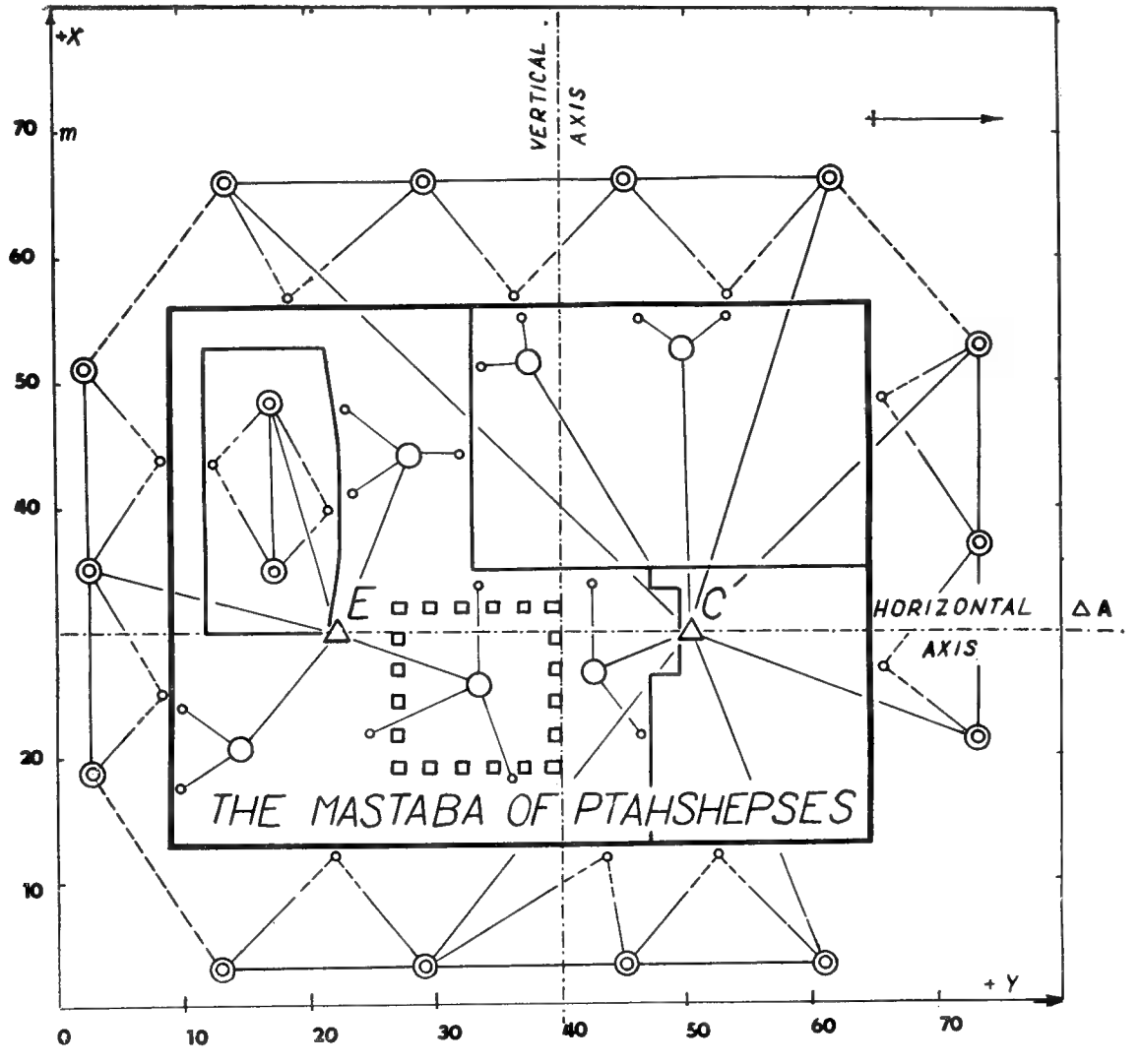


Fig. 6



o Ground control point

△ Geodetic point

◎ Station point of theodolite

○ Station point of tachymeter

Direction measurement

Direction and distance measurement

Check line

Eig. 7

Fig. 8a

Fig. 8b

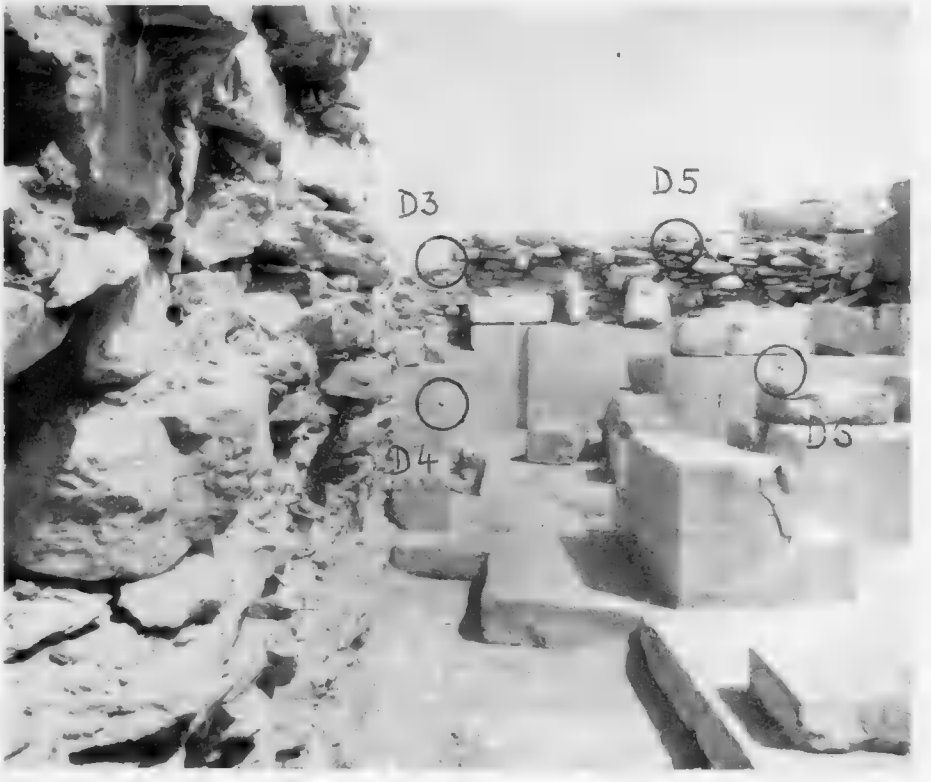


Fig. 9

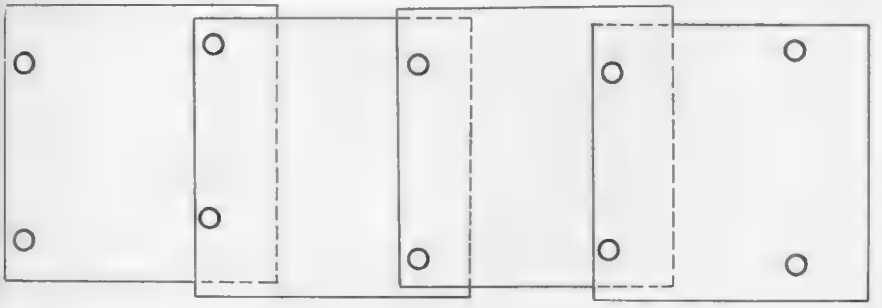


Fig. 10

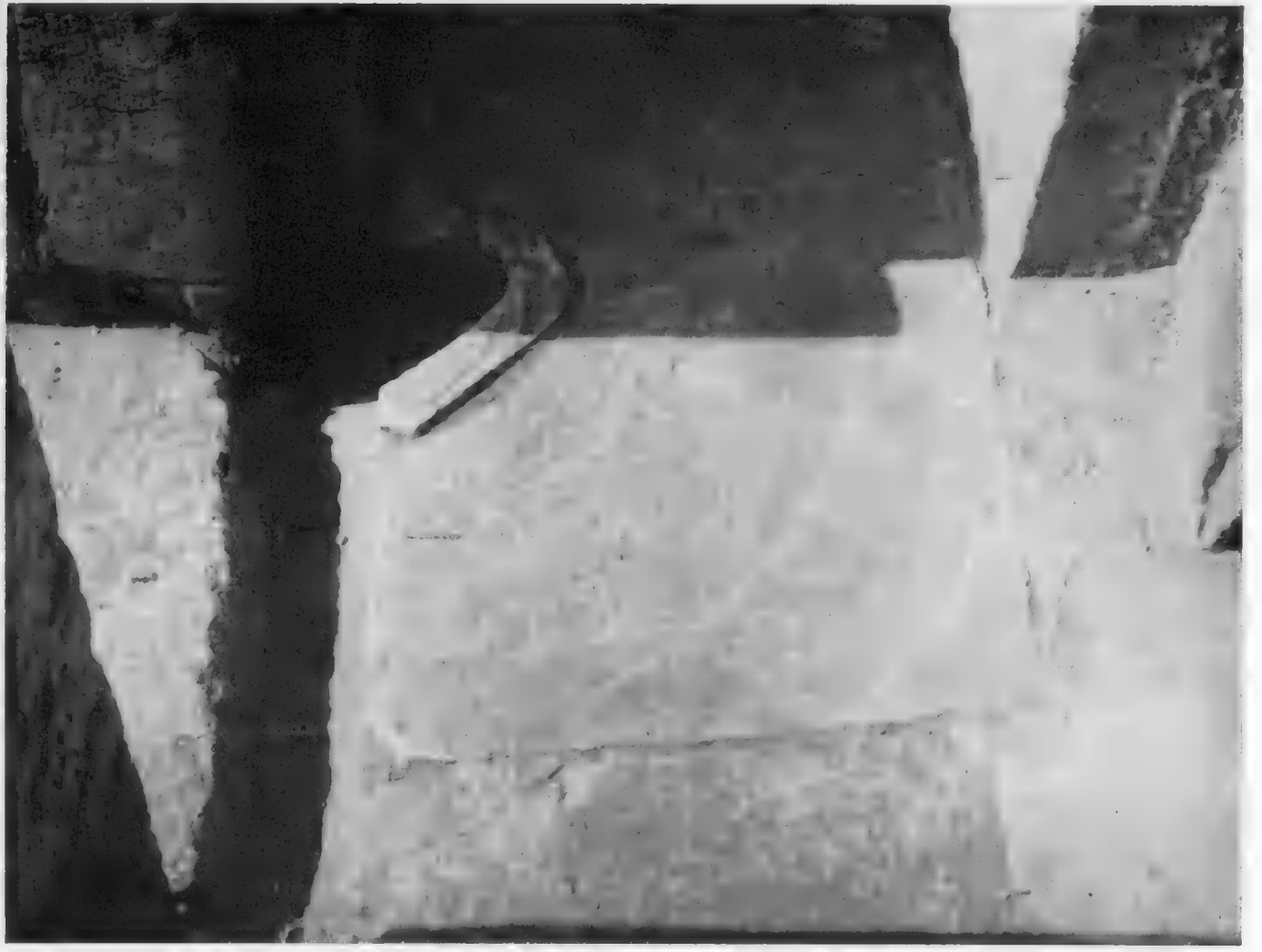


Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

Fig. 16

Fig. 17

Fig. 18

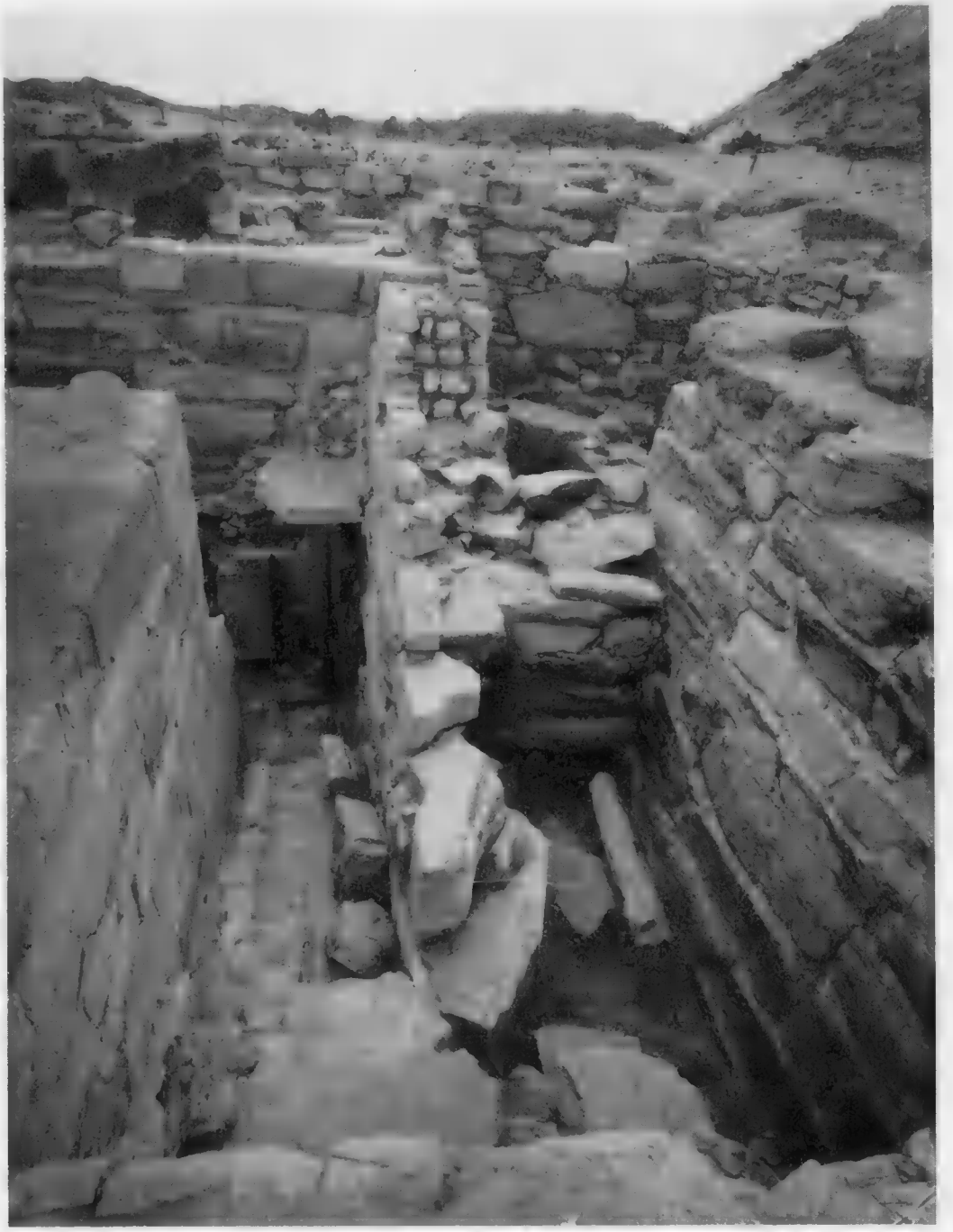


Fig. 19

Fig. 20

Fig. 21

Fig. 22

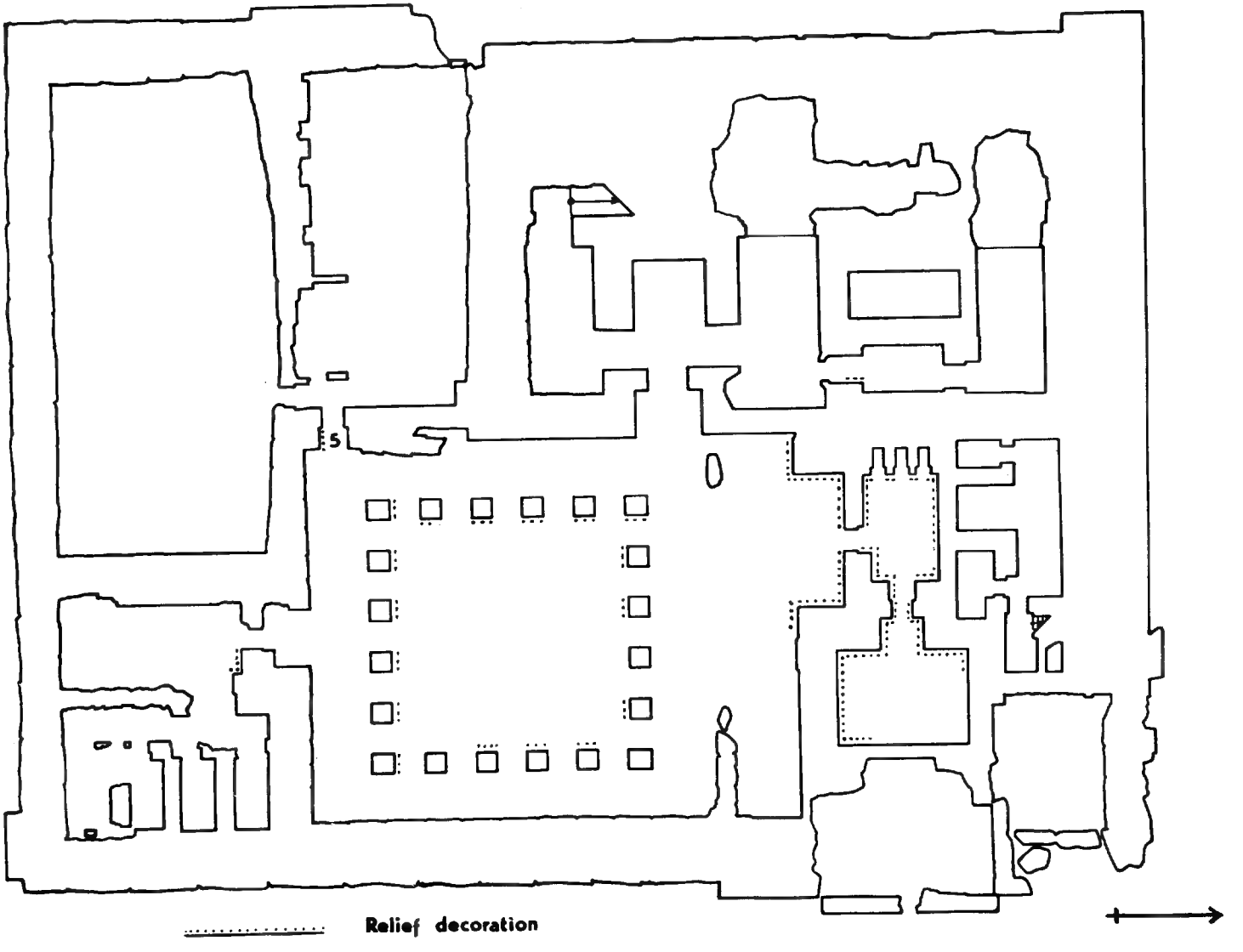


Fig. 23

Fig. 24

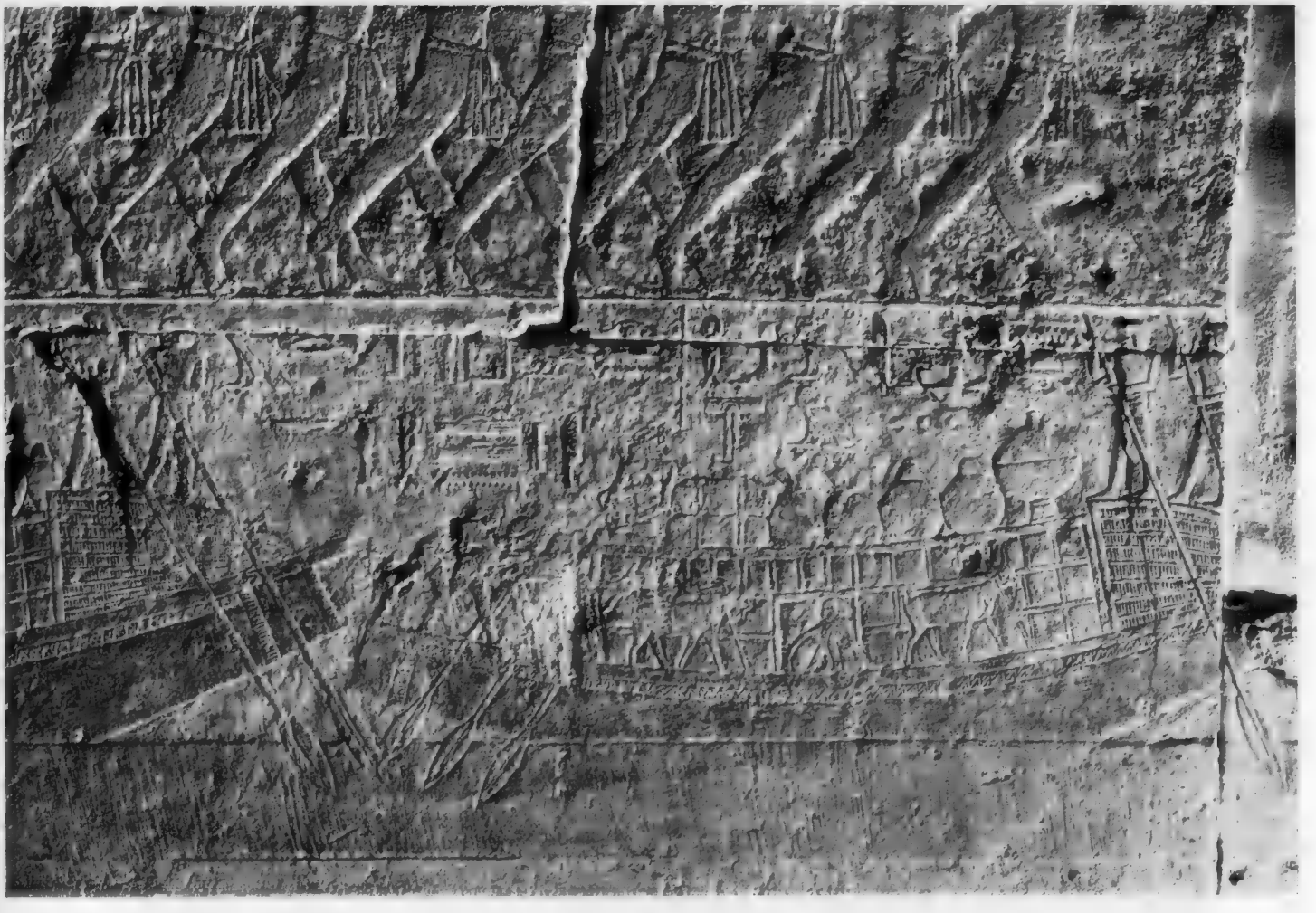


Fig. 25

Fig. 26

Fig. 27

Fig. 28

Fig. 29

Fig. 30

Fig. 31

Fig. 32

Fig. 33

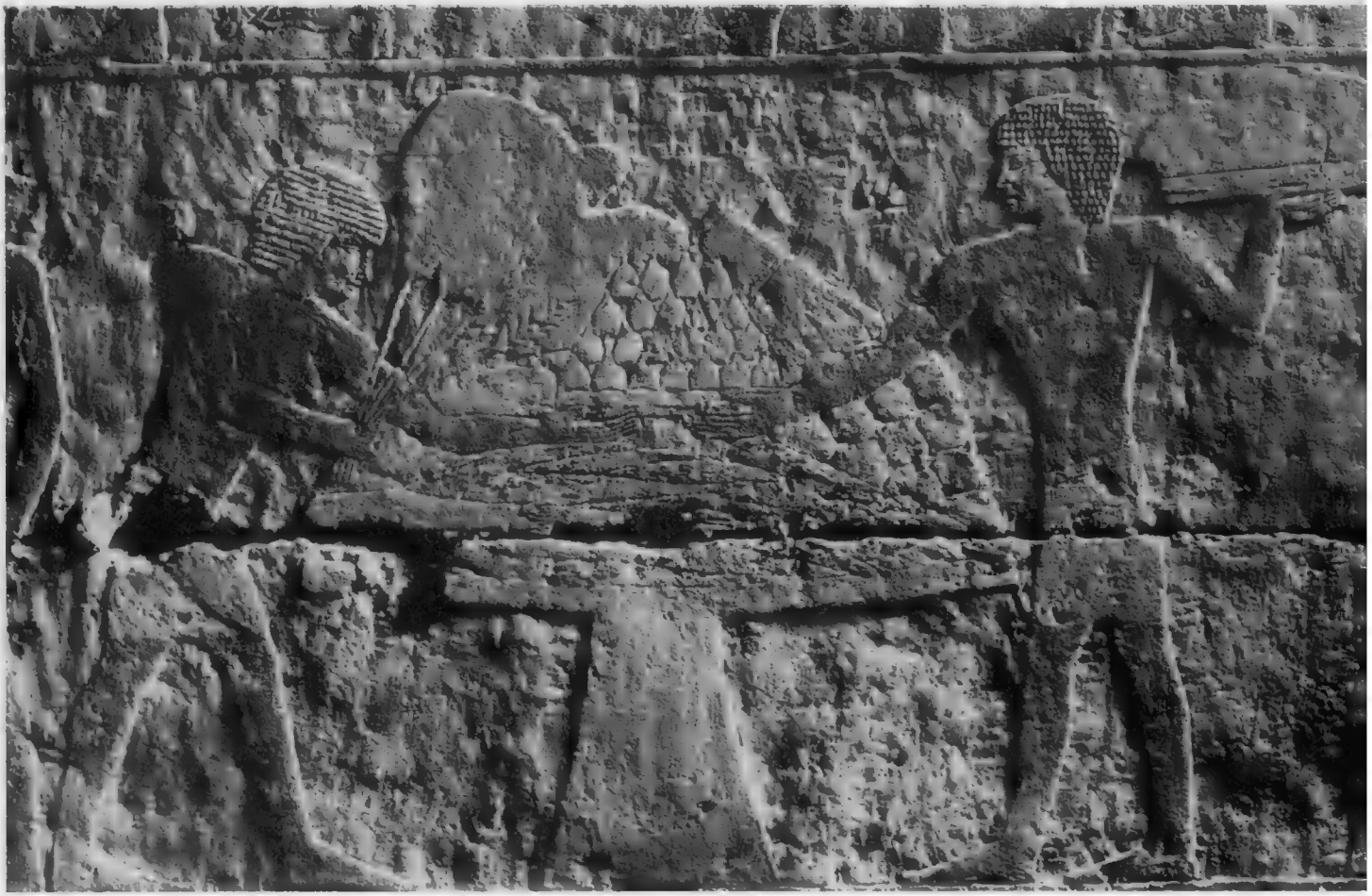


Fig. 34

Fig. 35

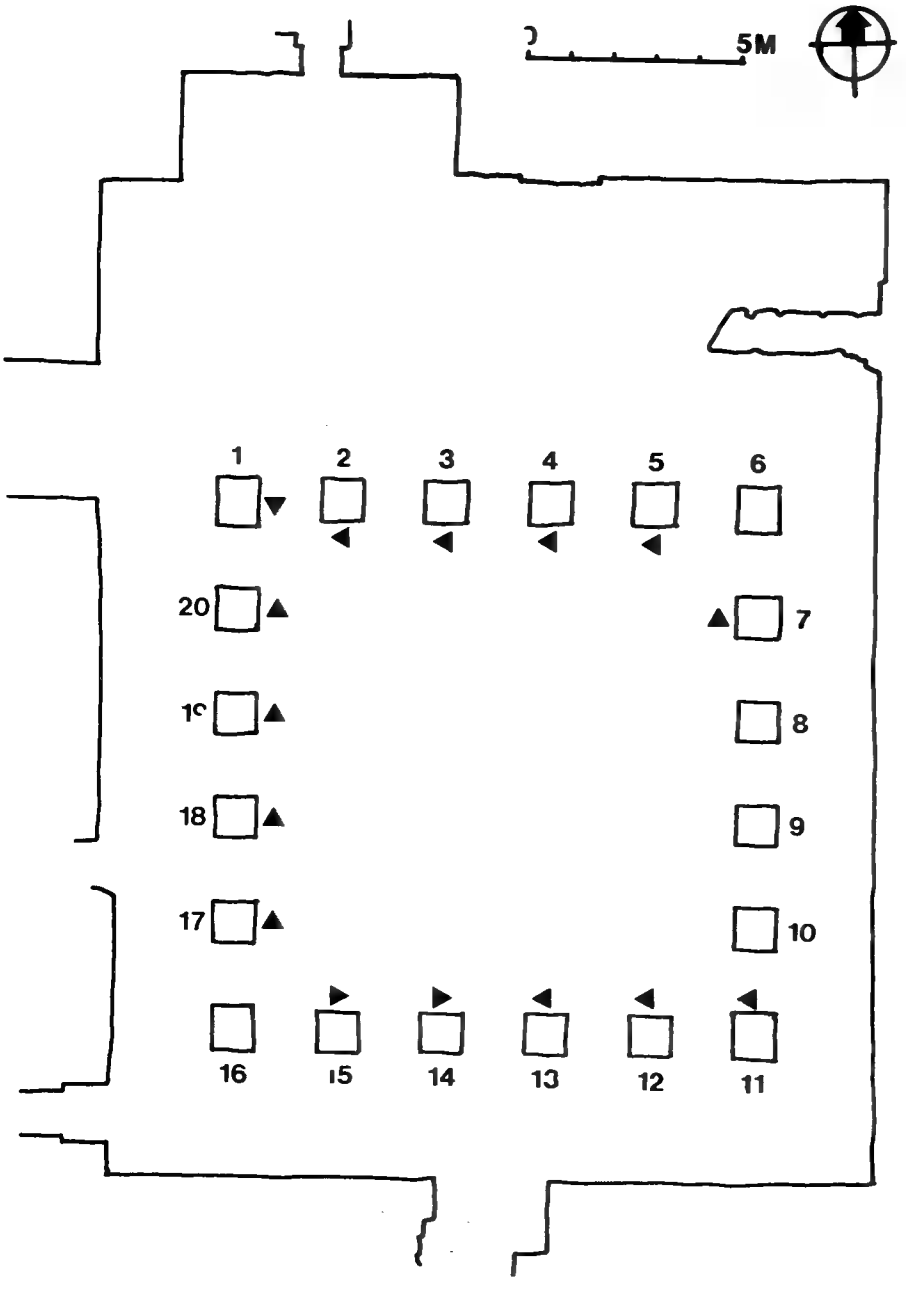


Fig. 36

Fig. 37

Fig. 38

Fig. 39

Fig. 40

Fig. 41

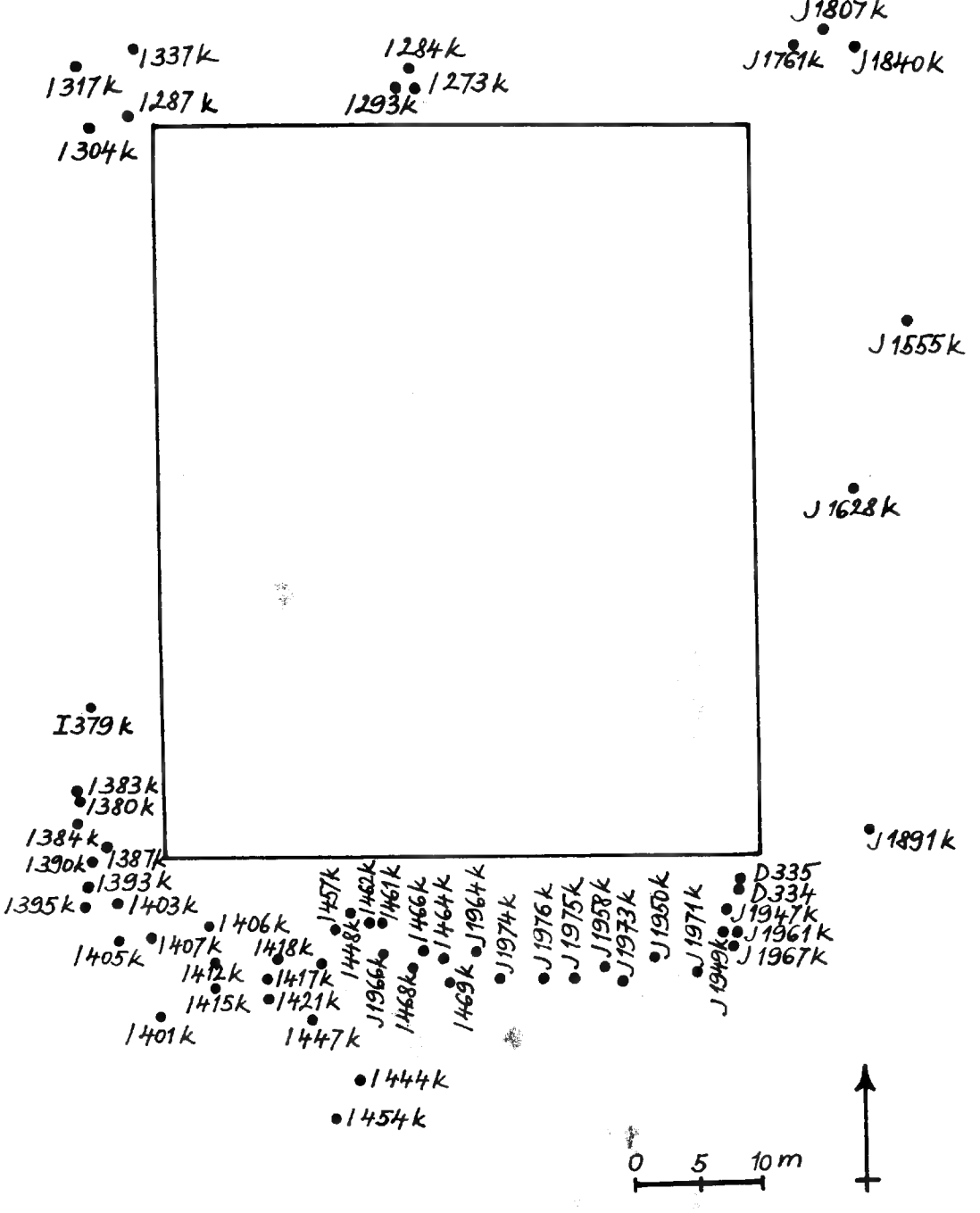
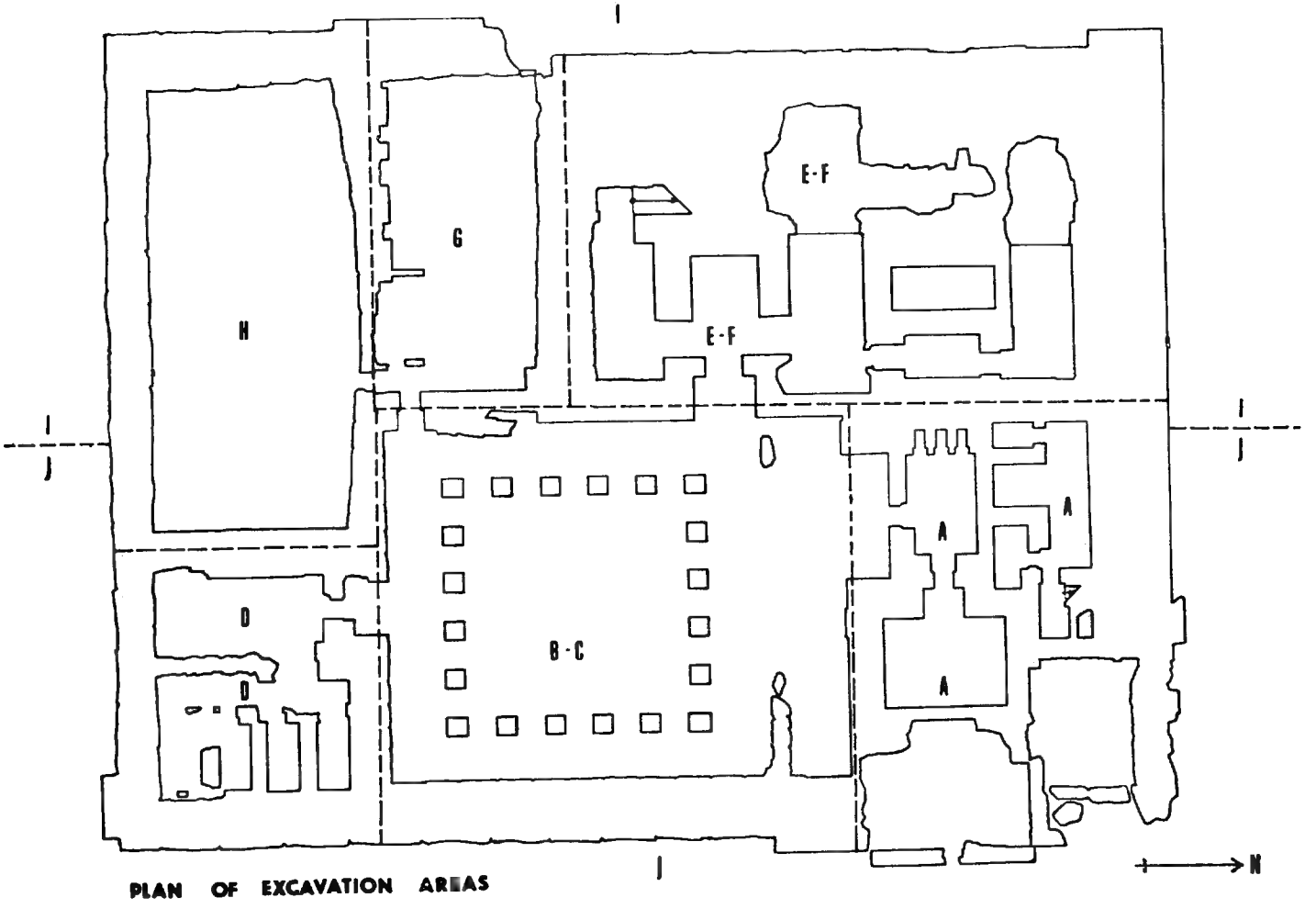

J1807k
1337k
1284k
J1761k
J1840k
1317k
1287k
1273k
1293k
1304k
J1555k
J1628k
I379k
1383k
1380k
1384k
1387k
1390k
1393k
1395k
1403k
J1891k
D335
D334
J1947k
J1961k
J1967k
1406k
1407k
1405k
1418k
1412k
1417k
1415k
1421k
1401k
1447k
1444k
1454k
1457k
1462k
1461k
1466k
1464k
1468k
1469k
1964k
1974k
1976k
1975k
1958k
1973k
1950k
1971k
1949k
0
5
10 m

Fig. 42

Fig. 43



PLAN OF EXCAVATION AREAS

Fig. 44

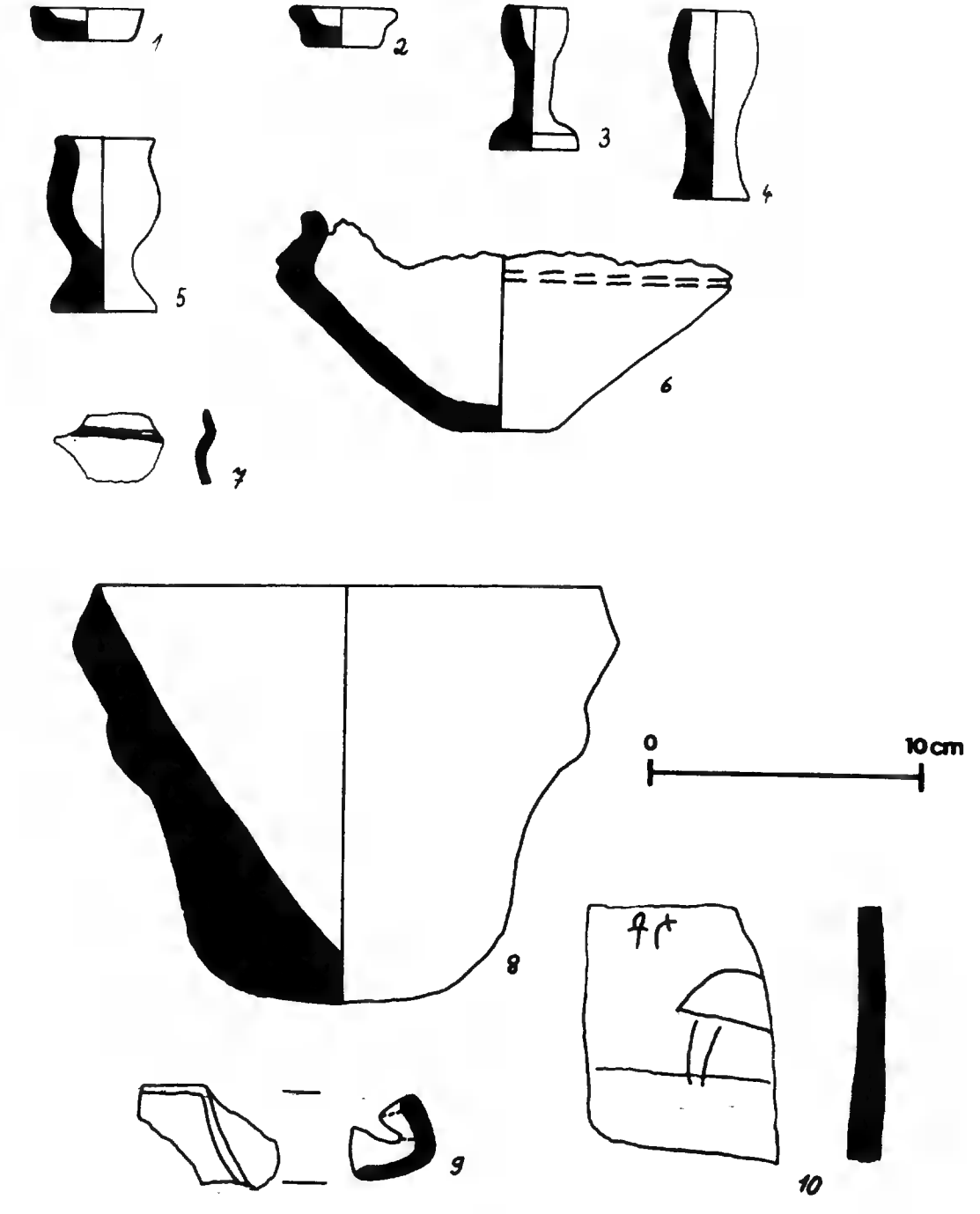


Fig. 45

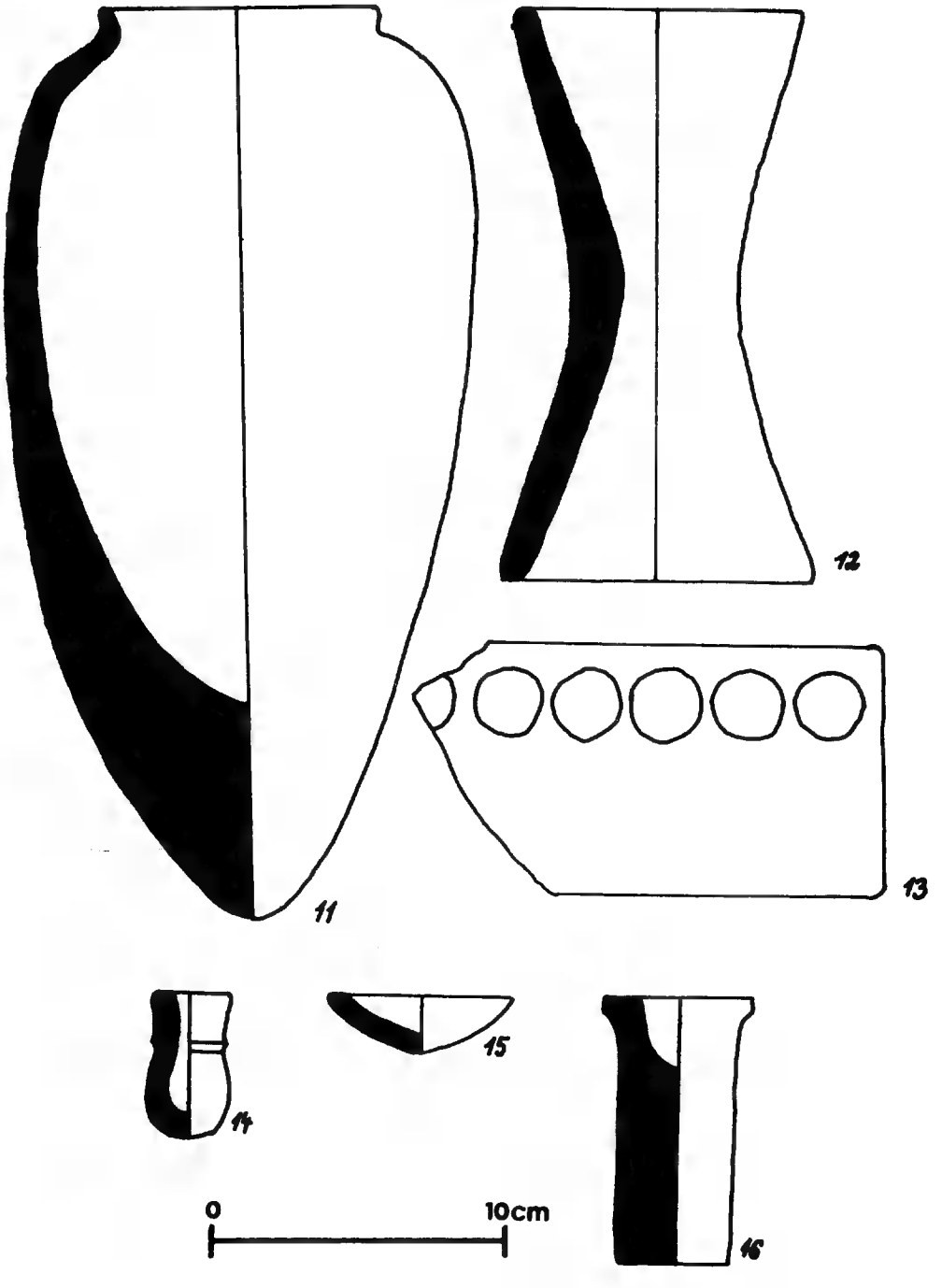


Fig. 46

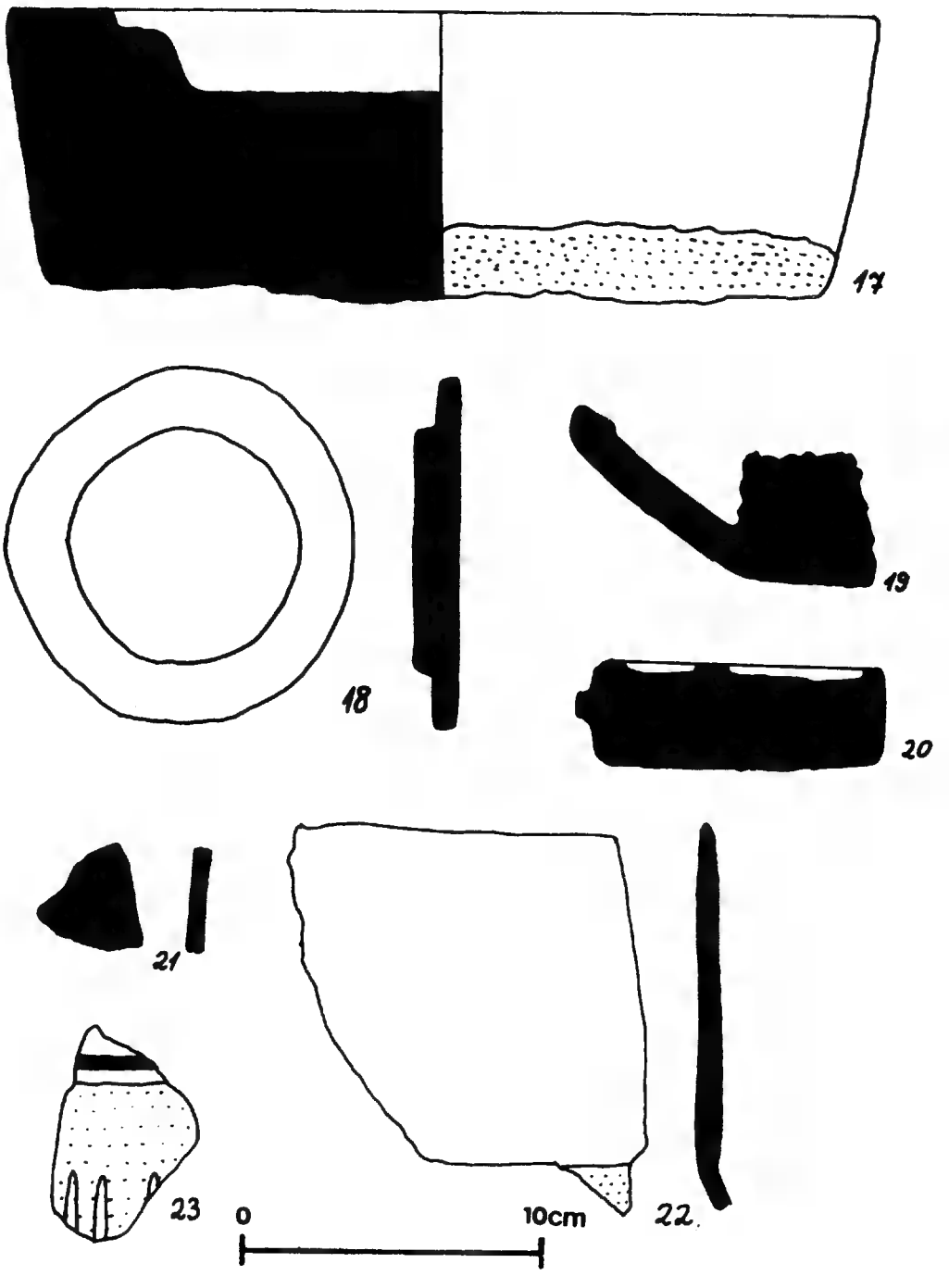


Fig. 47

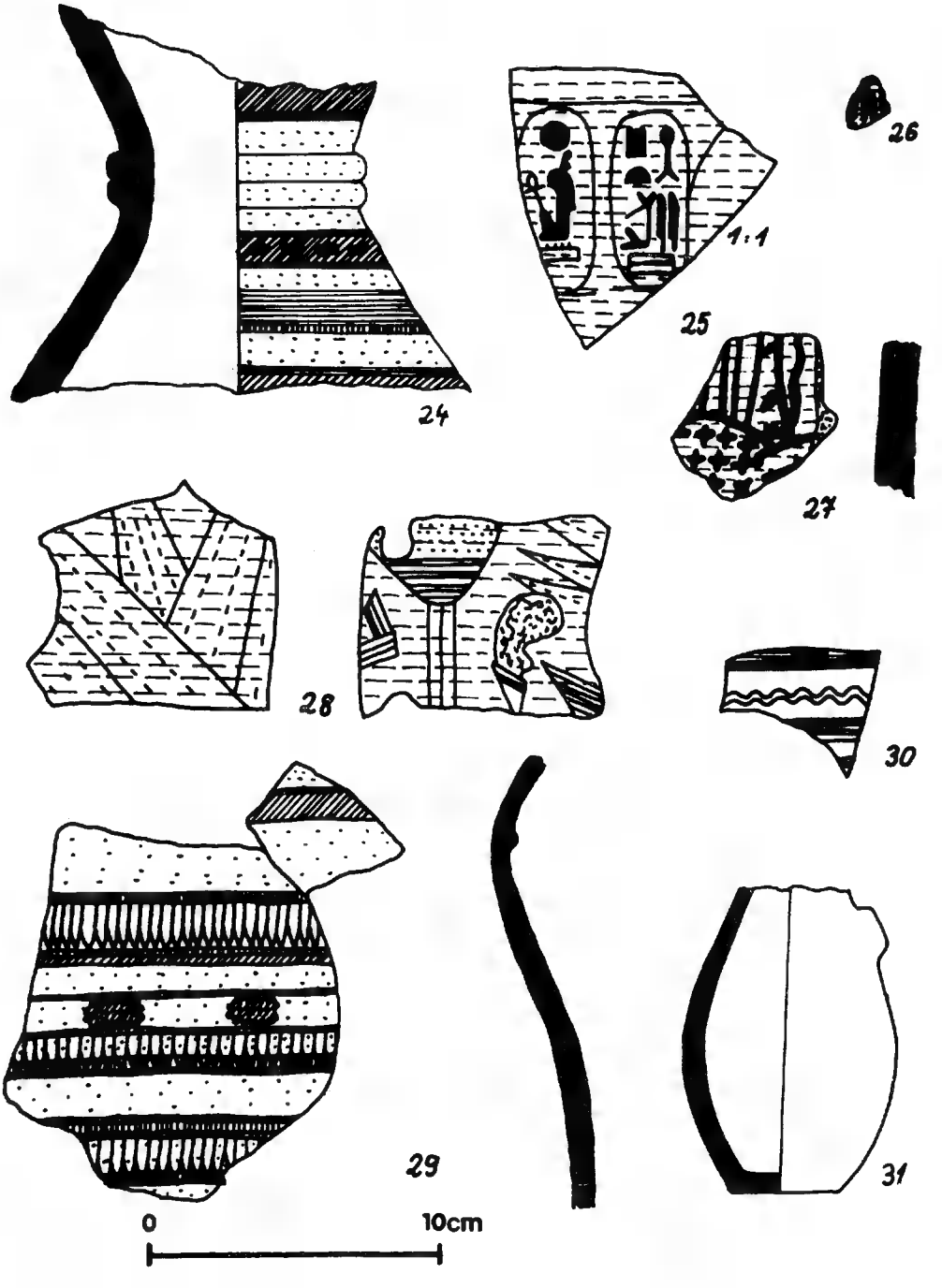


Fig. 48

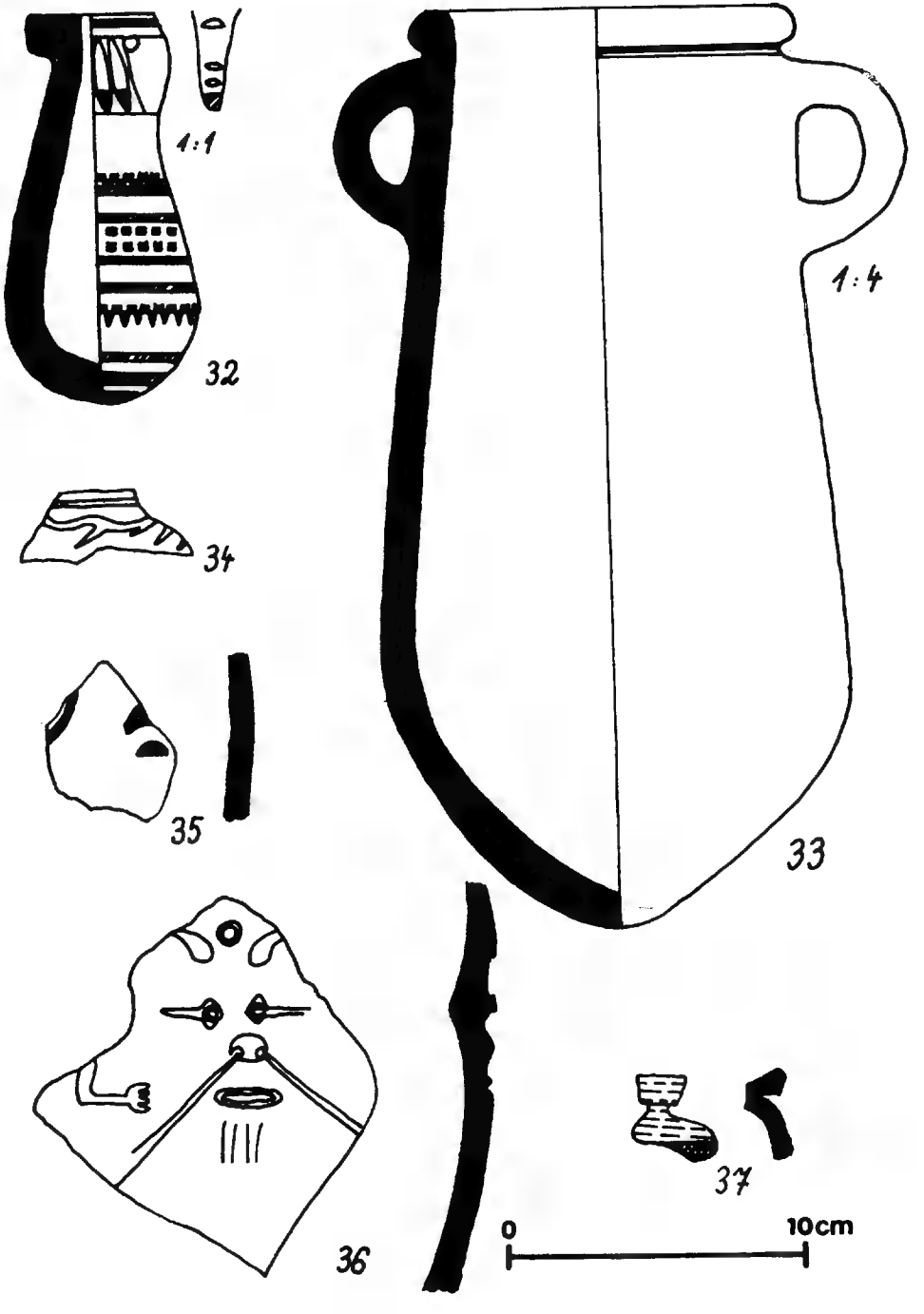


Fig. 49

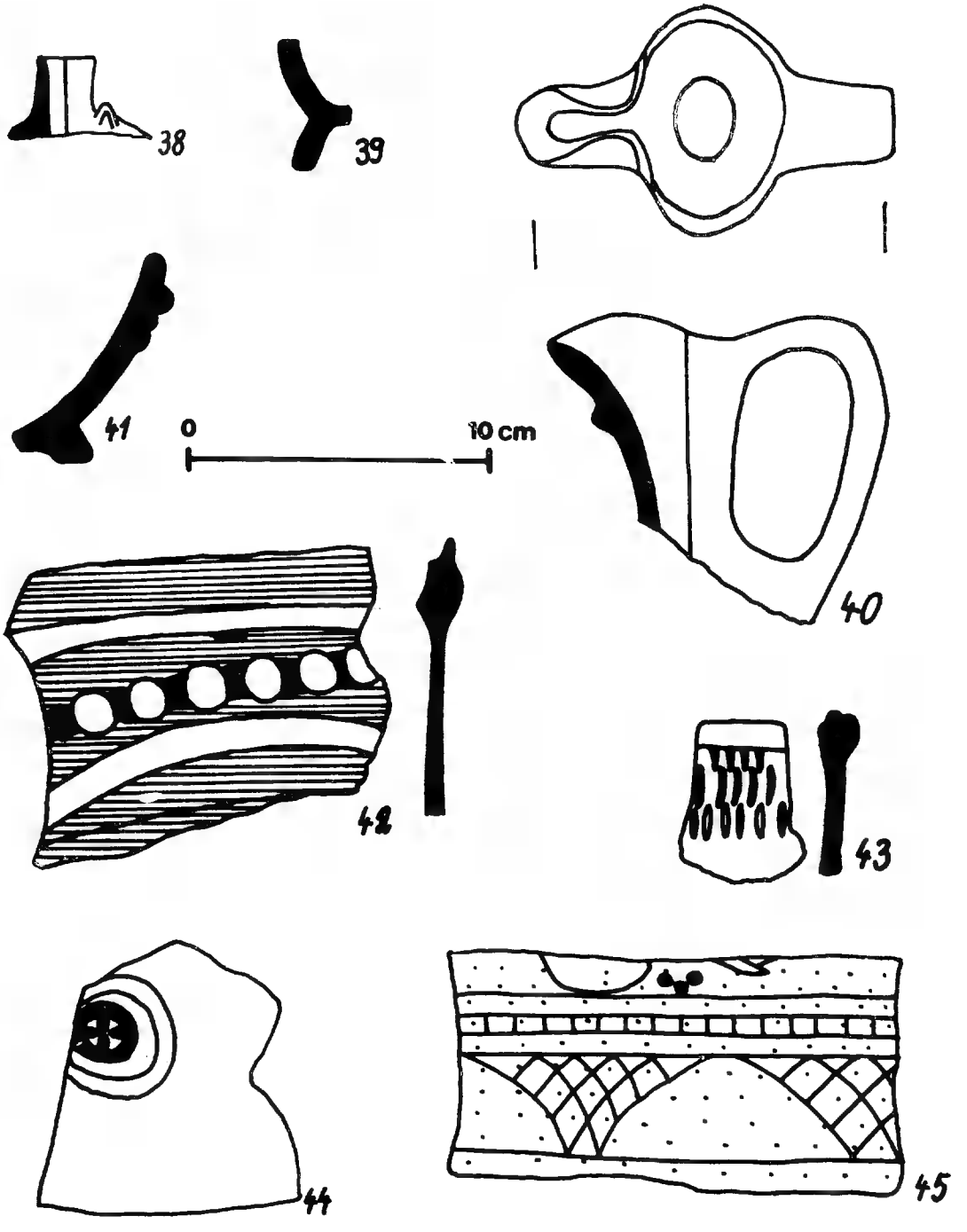


Fig. 50

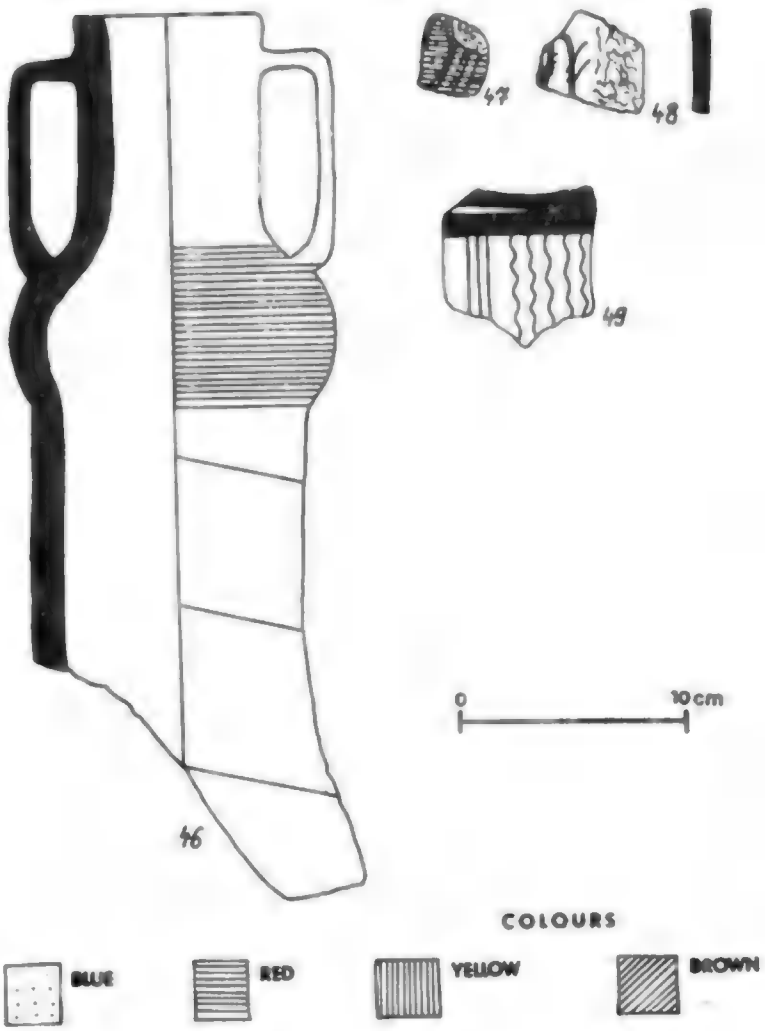


Fig. 51

Fig. 52

Fig. 53

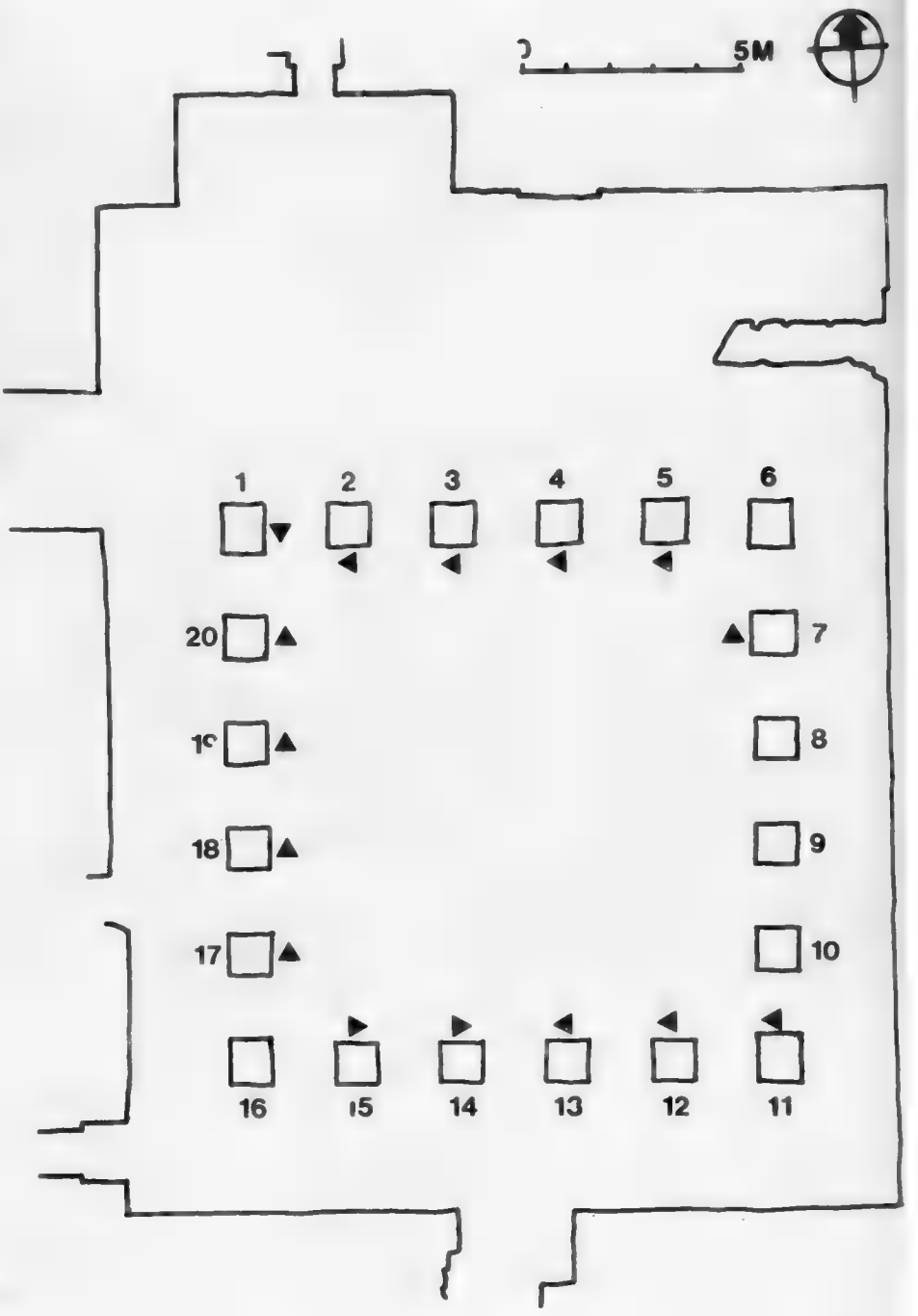


Fig. 54

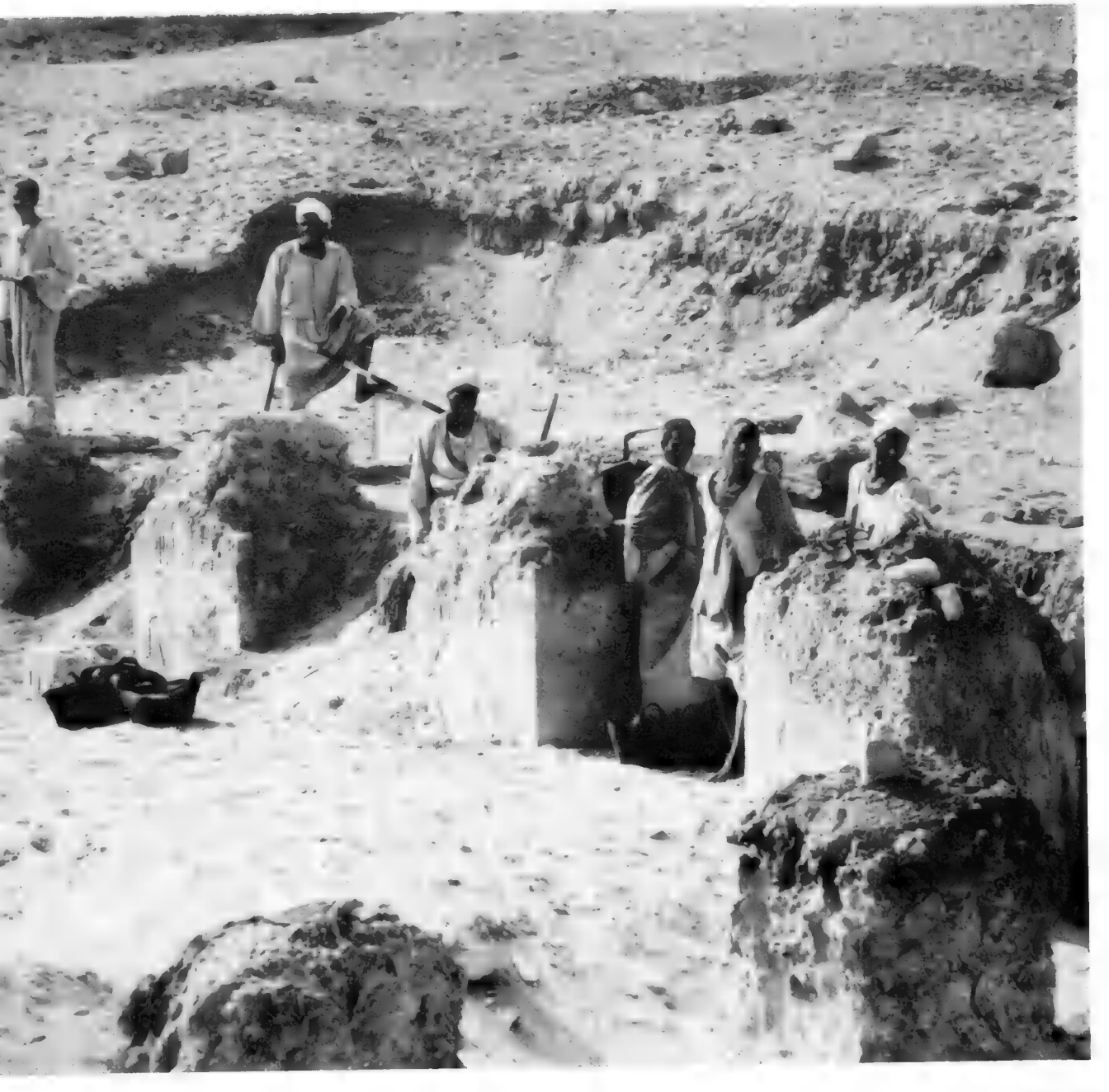


Fig. 55

Fig. 56

Fig. 57

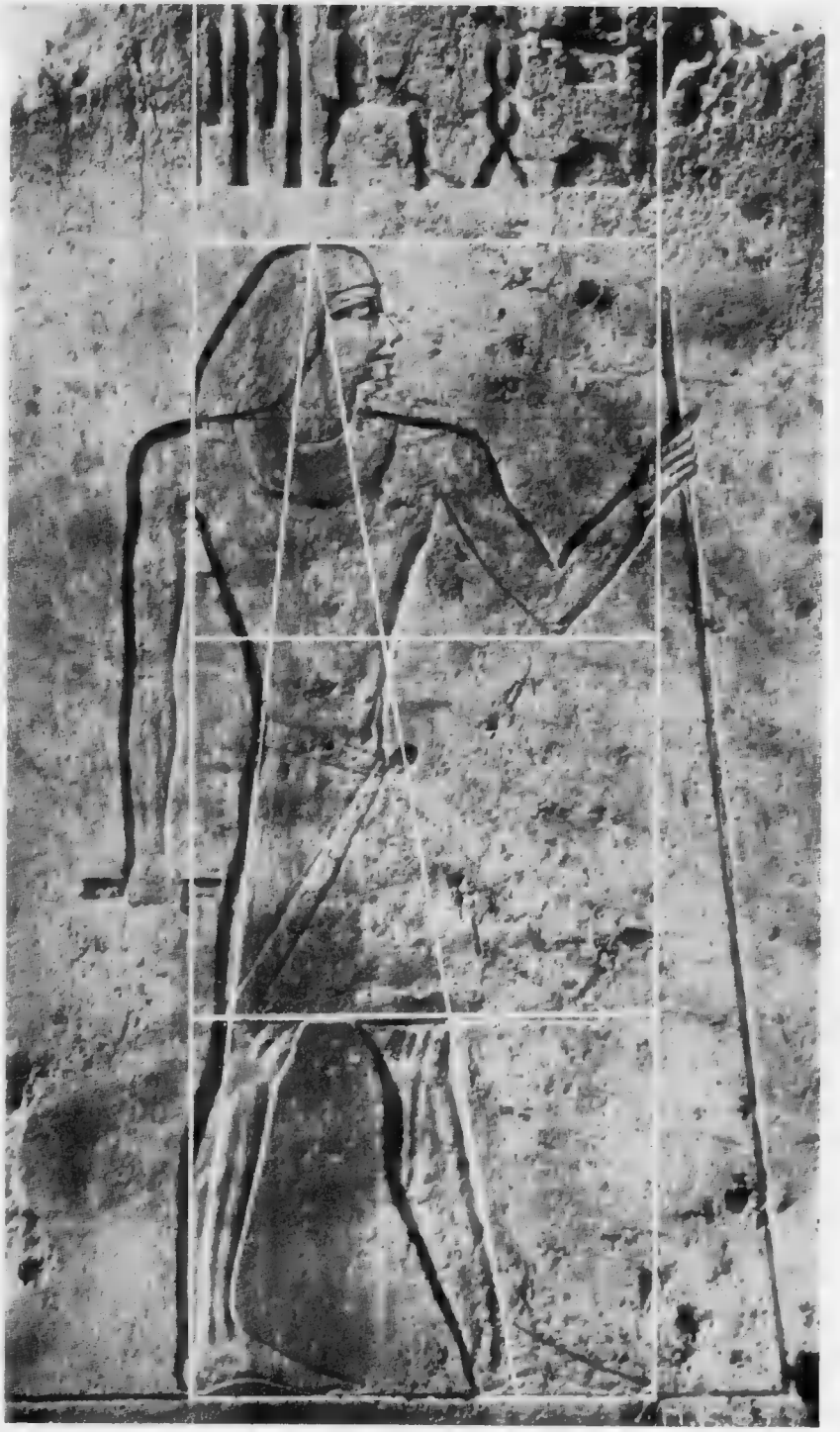


Fig. 58

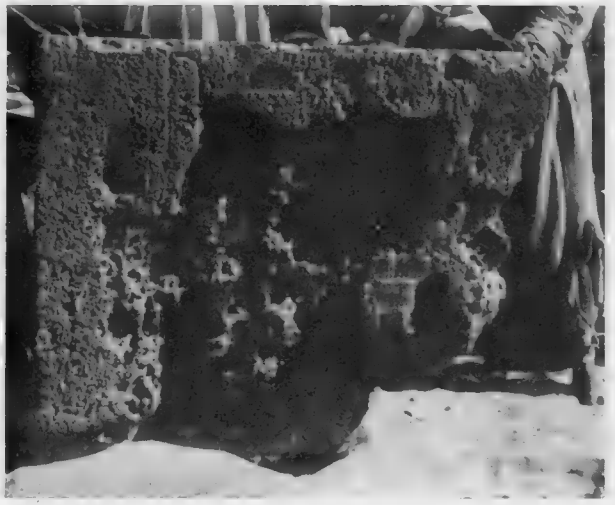


Fig. 60

Fig. 59

Fig. 62

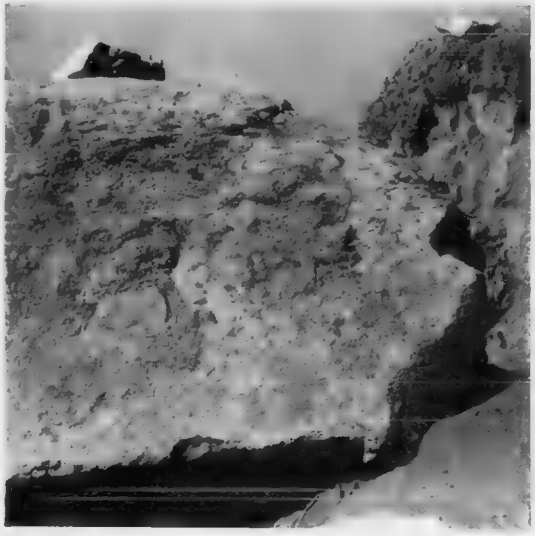


Fig. 63

Fig. 61

Fig. 64

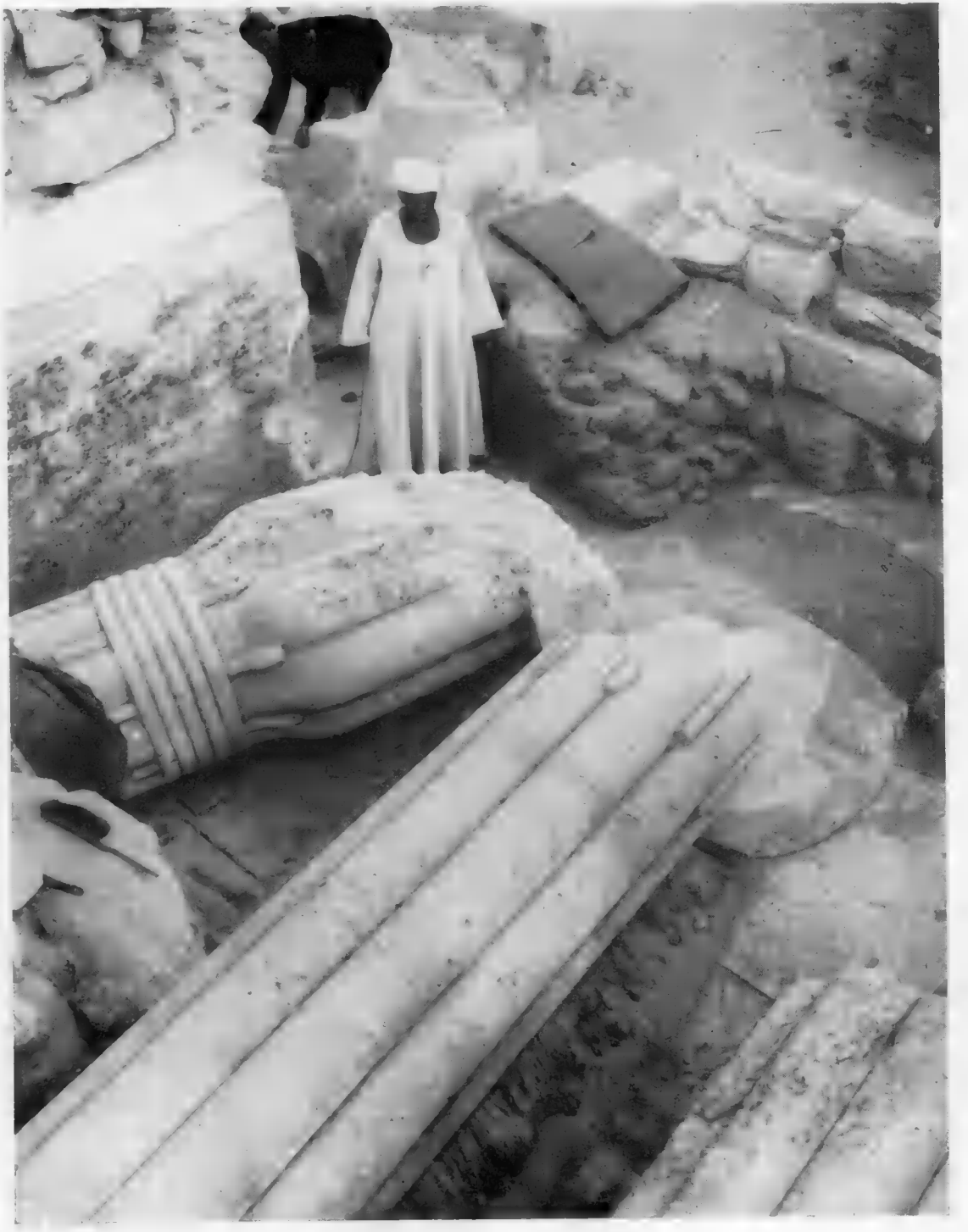


Fig. 65

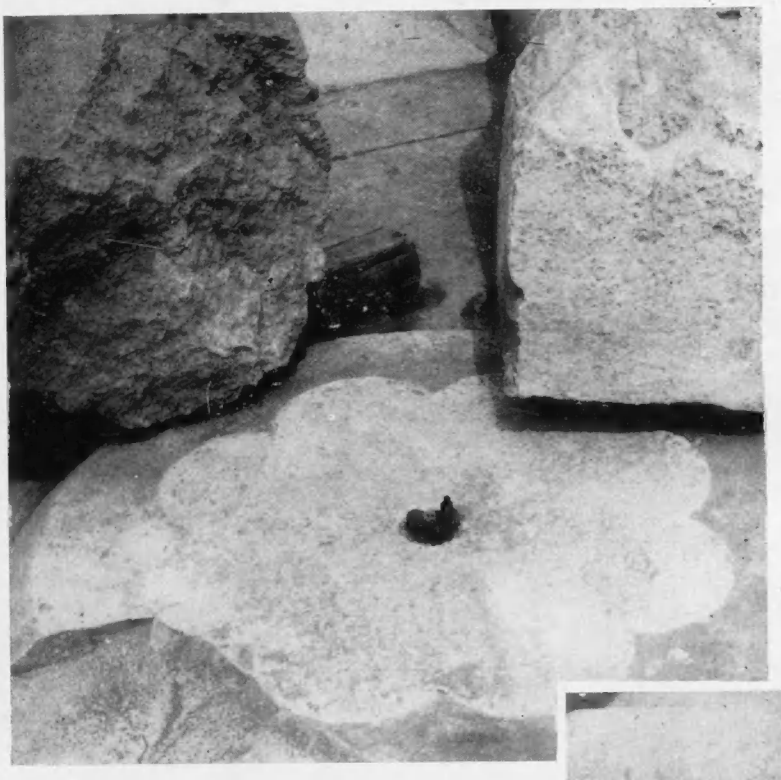


Fig. 66

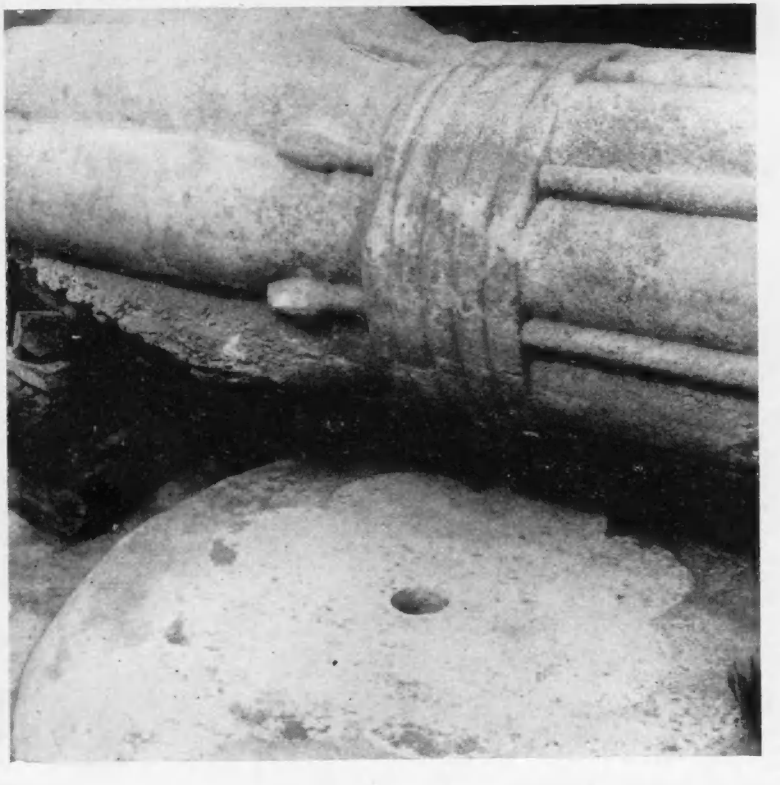


Fig. 67

Fig. 68

UNIVERZITA KARLOVA PRAHA 1976

60-022-76
Kčs 33,00